

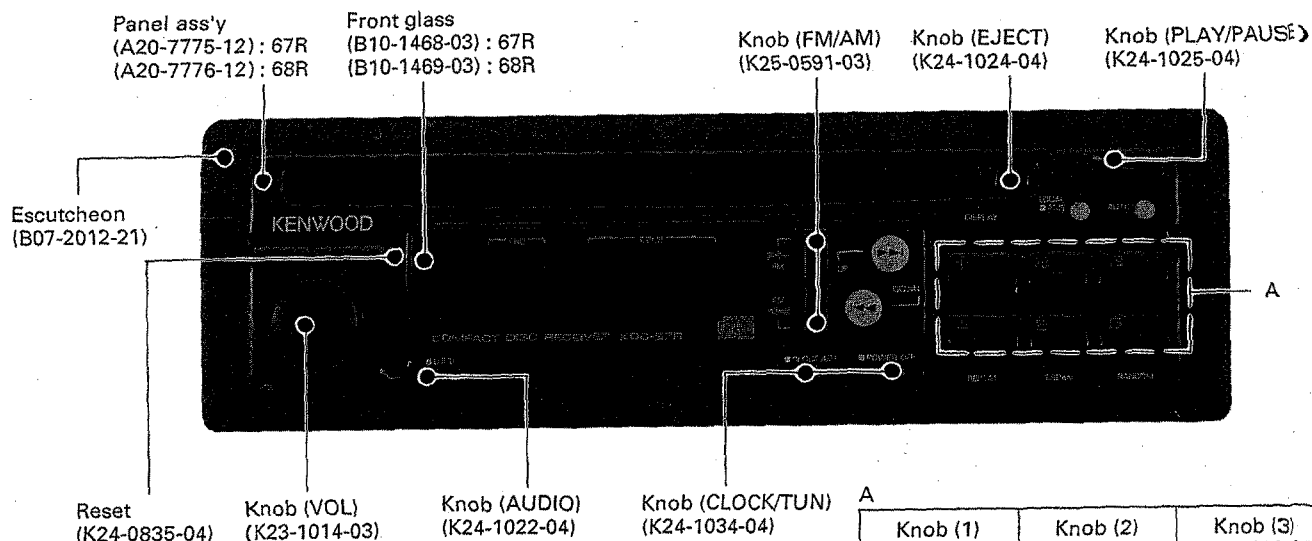
CD RECEIVER

# KDC-67R/68R

## SERVICE MANUAL

# KENWOOD

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B51-6418-00(O)3667



A

Knob (1) K24-0907-13	Knob (2) K24-0908-13	Knob (3) K24-0909-13
Knob (4) K24-0910-13	Knob (5) K24-0911-13	Knob (6) K24-0912-13

Mounting hardware  
(J21-7258-11)

Top plate  
(A52-0641-02)

Cord with plug  
(E30-3786-05)

DC power cord  
(E30-3770-05)

Stay  
(J54-0059-04)

Insulating cover  
(F29-0604-15)

Cap  
(F29-0049-05) X2

**Mechanism extension cord for service.**

W05-0392-00 (20P)

# KDC-67R/68R

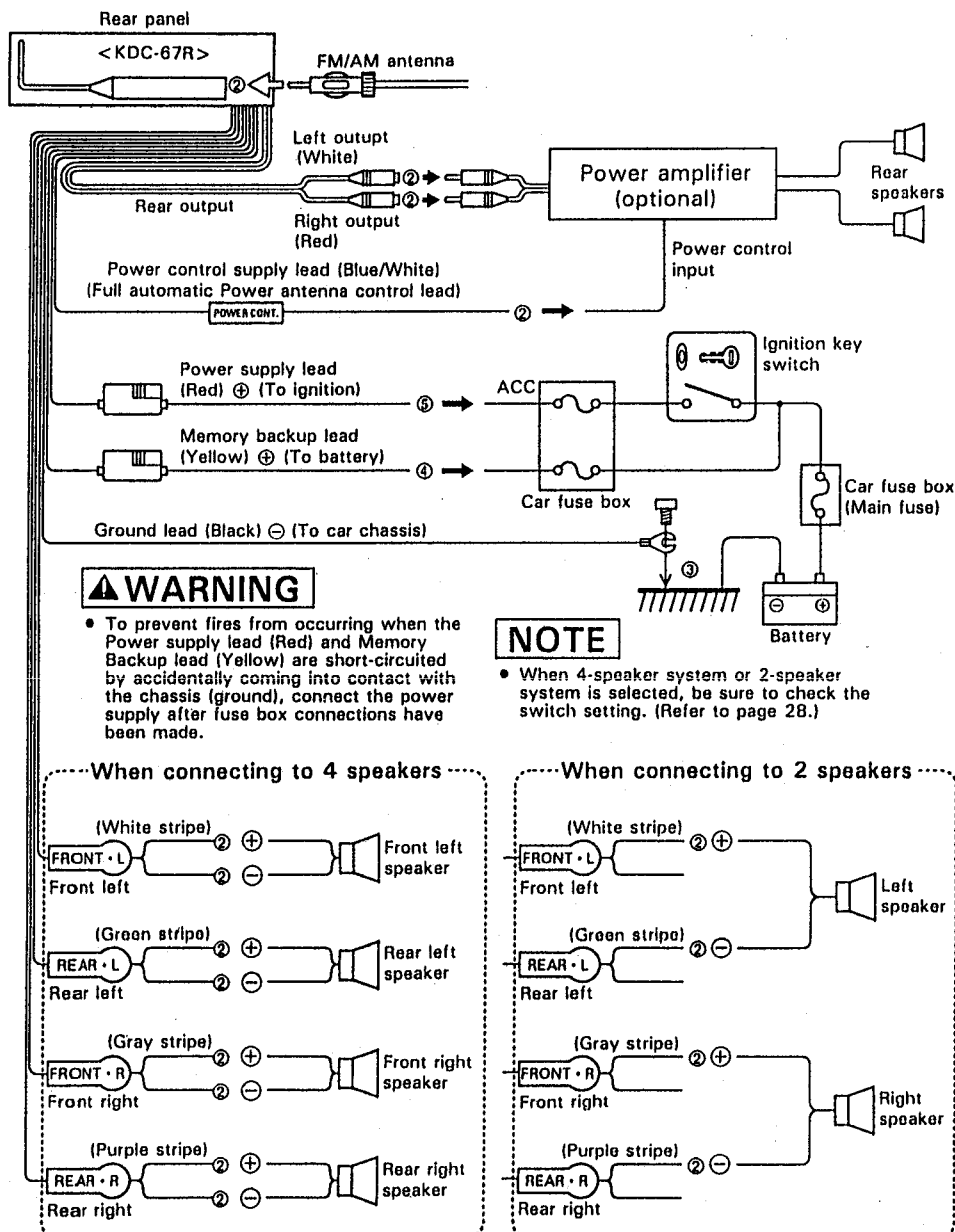
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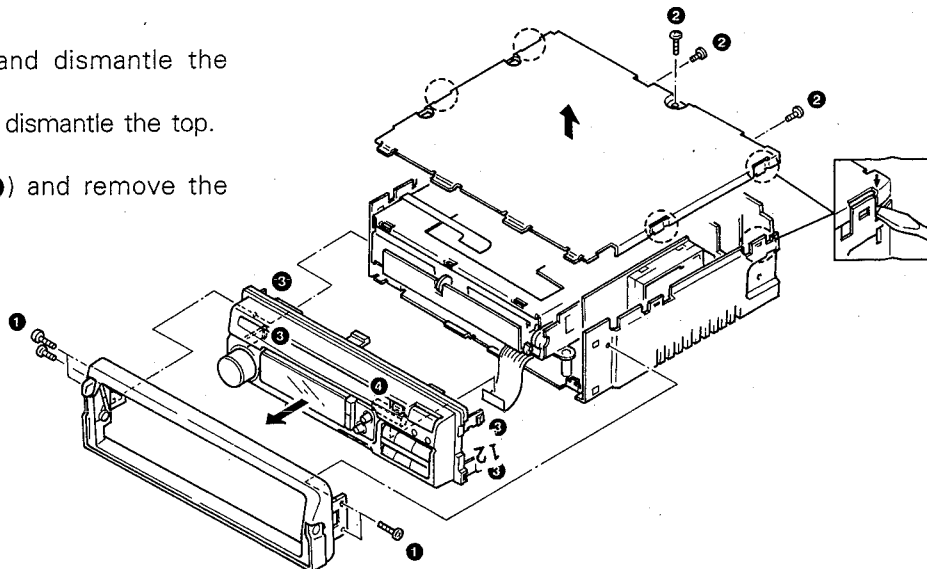


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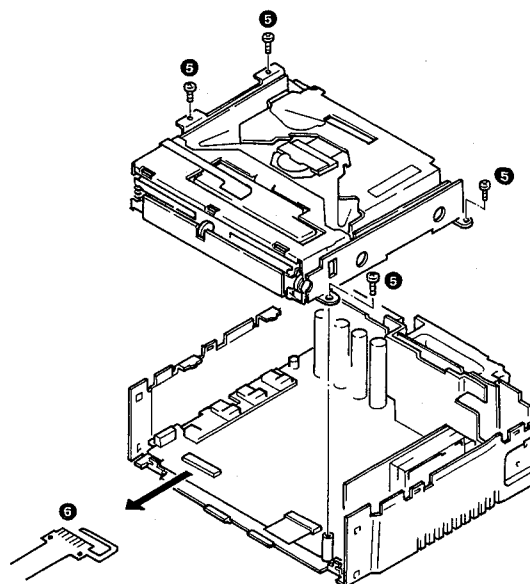
## DISASSEMBLY FOR REPAIR

### Disassembly for repair

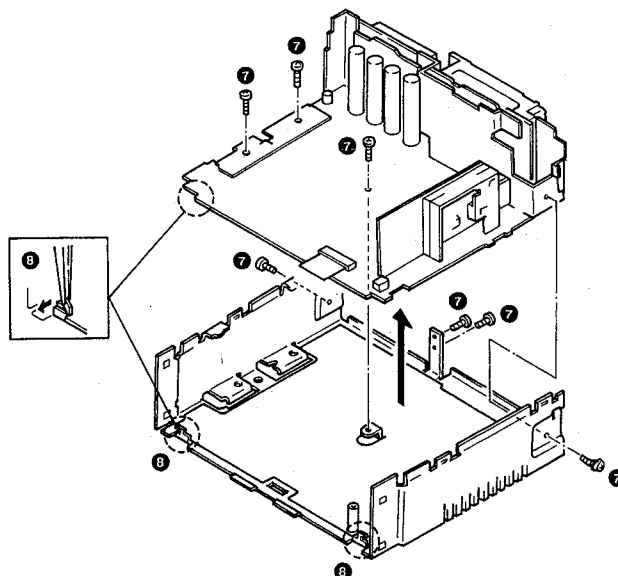
1. Remove the 5 screws (❶) and dismantle the handle.
2. Remove the 3 screws (❷) and dismantle the top.
3. Disengage the 5 claws (❸).
4. Disconnect the connector (❹) and remove the front panel.



5. Remove the 4 screws (❺).
6. Disconnect the connector (❻) and take out the mechanism assembly.



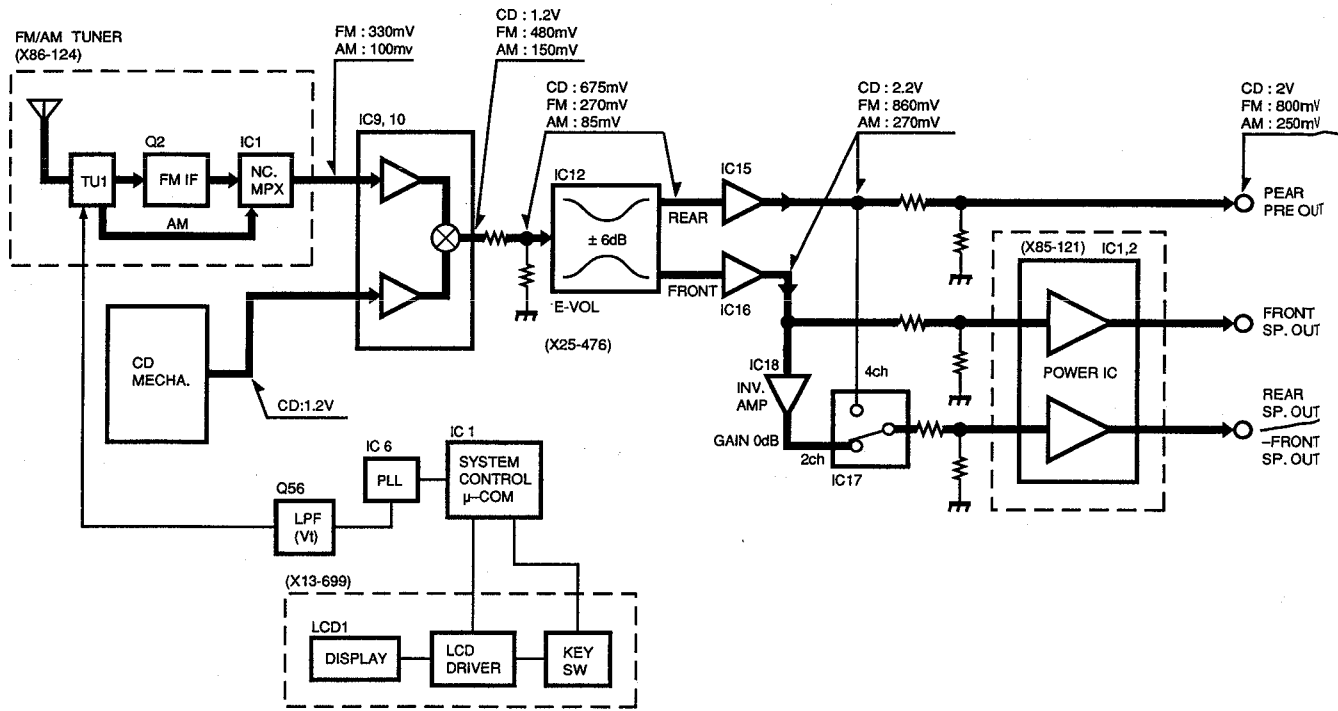
7. Remove the 7 screws (❽).
8. Bend and disengage the 2 lugs on the metallic holder fixing the circuit board (❾).



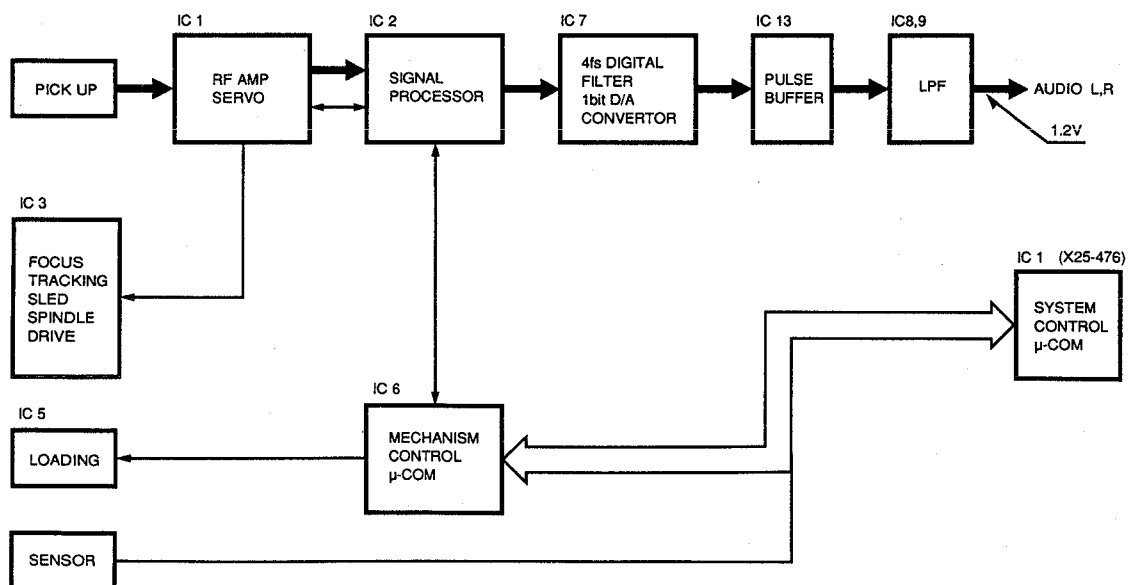
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## BLOCK/LEVEL DIAGRAM

### Block diagram



### CD mechanism





## CIRCUIT DESCRIPTION

## 1. Description of components

## 1-1. Electric unit (X25-4760-10)

Ref No.	Use / Function	Operation / Condition
IC1	System controller	
IC3	Reset IC	Prevents system controller malfunction ("L" below 3.7V)
IC4	3-terminal 5V regulator	5V power supply for microcomputer, digital circuitry and mechanism servo. (A 3-terminal) IC with small power consumption : ordinary products cannot be used.)
IC5	AVR driver	8V AVR.
IC6	PLL	Switches between FM+B, AM+B and LW/MW at output ports.
IC9, 10	CD/TUNER SW	Switches inputs with switching opamp. Determined level distributions of CD and tuner.
IC11	Volume buffer	Voltage follower.
IC12	Electronic volume/tone IC	Tone control, loudness (low frequencies only), volume, balance, fader.
IC13, 14	Tone amp fader-buffer	Voltage-followers.
IC15	Pre-out buffer preamp (When 4CH is selected)	In 4CH operation, functions as the rear preamplifier supplying inputs to power amplifier.
IC16	Preamp	Front preamplifier supplying inputs to power amplifier.
IC17	2CH/4CH analog SW	In 2CH operation, switched to front signals inverted by IC18. In 4CH operation, switched to rear signals.
IC18	Inverter amp	In 2CH operation, inverts front signals and supplies them to power amplifier inputs.
IC19	1/2 Vcc buffer	Outputs 1/2 of 8V for use as reference voltage of audio circuitry.
Q1, 28, 38	Muting	Muting driver. When reset is applied, Q28 turns driver Q1 ON. In case of momentary power failure, Q37 and Q38 turns driver Q1 ON.
Q2, 3	MUTE	Muting driver receiving instructions from system controller.
Q4	AVR	8V output.
Q5	14.4V SW	Interlocked with $\mu$ -COM power ON.
Q6, 7	Servo +B AVR	Servo power supply, 7.6V output.
Q8, 9	Illumination AVR	Illumination power supply. 10.5V output.
Q10~13	Illumination SW	Switches between amber/green.
Q14	Acc detector	Collector goes "L" when Acc is ON.
Q15, 37	BU detector	Collector goes "L" when BU voltage is connected.
Q16	P-COM, P-ANT	P-COM and P-ANT driver.
Q17, 18	P-COM	P-COM protection.
Q19	P-COM ON/OFF	
Q20, 21	Power amp standby	Turns ON/OFF standby port of power IC.
Q22, 23	Rotary encoder buffer	Converts rotary encoder output into level read by $\mu$ -COM input port.
Q24	5V SW	Interlocked with $\mu$ -COM power ON.
Q25		
Q26	CD/TUNER SW	Switches inputs to IC9 and IC10.
Q27, 29	Reset	To reset $\mu$ -COM. $\mu$ -COM RESET port is turned "L" by panel RESET switch.
Q31~36	Muting	Audio muting
Q51	FM muting output	FM muting output turns SX meter output "LOW".
Q52	AM SD output buffer	Low during reception.
Q53	FM S meter buffer	Emitter-follower.
Q54	AFC SW	Collector is "L" during seek.
Q55	FM SD output buffer	Low during reception.
Q56	LPF	Used with both FM and AM.
Q58	FM +B ON/OFF	
Q59	AM +B ON/OFF	

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## CIRCUIT DESCRIPTION

Ref No.	Use / Function	Operation / Condition
D1, 2	Reverse connection protection	Protection diodes to prevent reverse current flow to GND in case of reverse connection of BU (D1) or ACC (D2).
D3	Reverse current prevention in case of momentary power failure.	In case of momentary power failure, D3 prevents reverse current to prevent 5V power voltage drop.
D4	Reference voltage	Reference voltage of servo +B AVR.
D5	Reference voltage	Reference voltage of illumination +B AVR.
D6	Level shift	Sets Acc detection threshold level.
D7	Discharging	Discharges C20 by providing difference in constant at the time of ON/OFF.
D8	Discharging	Discharges C21 by providing difference in constant at the time of ON/OFF.
D9	Level shift	Sets BU voltage detection threshold level.
D10	Reverse current prevention	For the case in which receiving side of P-ANT has capacity.
D11	Discharging	Discharges C24 to release P-CON protection.
D12	Reverse current prevention	Prevents reverse flow of 14.4V toward 5V.
D13	Static protection	Prevents static electricity from applying reset.
D51	Temperature compensation	
D52	Constant voltage	Constant voltage of LPF current.

### 1-2. Switch unit (X13-6990-10)

Ref No.	Use / Function	Operation / Condition
IC1	LCD driver	Controls LCD display.
D3	Illumination LED	Back light of PLAY key.
D7~12	Back light of preset keys (1 to 6).	
D15	Back light of PWR SW and clock or Illumination or SDK.	
P1, 2	Illumination lamps (amber)	Back light of LCD, VOL and keys near lamps.
D1	Illumination lamp LED	
D2	Back light of EJECT.	
D4~6	Back light of LOCAL and AUTO.	
D13, 14	Back light of VOL.	
LCD	Liquid crystal display	Displays characters and numerals

### 1-3. Tuner unit (X86-1240-10)

Ref No.	Use / Function	Operation / Condition
Q1	LOCAL / DX SW	ON during LOCAL seek.
Q2	IF AMP	
Q3	AM AGC (1st stage)	ON during seek.
Q4	AM AGC (2nd stage)	Turned ON when Q3 goes ON.
Q5	Muting	ON in tuner reception.
IC1	FM processor	

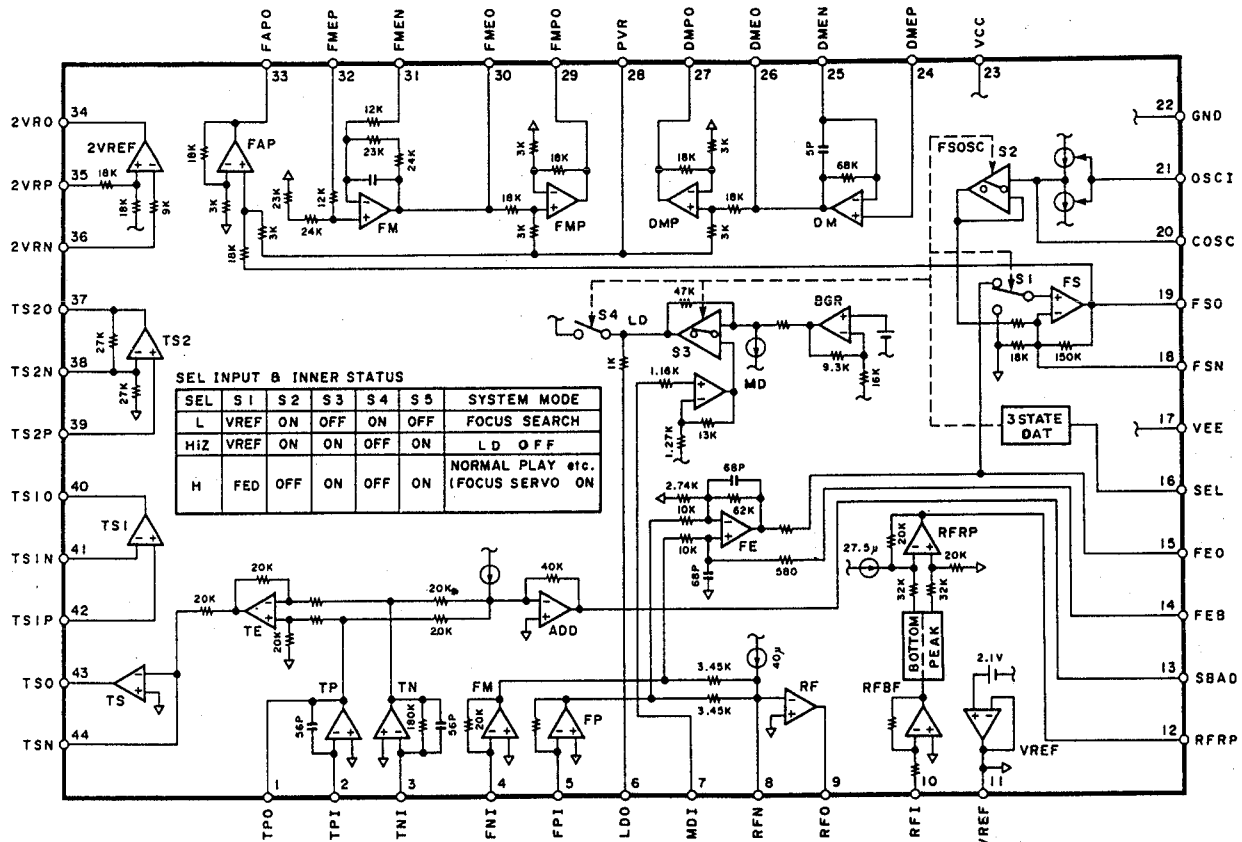
### 1-4. Power amplifier unit (X85-1210-10)

Ref No.	Use / Function	Operation / Condition
IC1, 2	Power amp	

## CIRCUIT DESCRIPTION

## 2. RF amp/Servo : TA8191F (X32-2210) IC1

## 2-1. Block diagram



## 2-2. Terminal function (TA8191F)

Pin No.	Symbol	I/O	Function	Remark
1	TPO	O	Sub-beam I-V amp (TP AMP) output terminal.	Connected to TPI via adjustment feedback resistor.
2	TPI	I	Sub-beam I-V amp (TP AMP) input terminal.	Connected to PIN diode F.
3	TNI	I	Sub-beam I-V amp (TN AMP) input terminal.	Connected to PIN diode E.
4	FNI	I	Main beam I-V amp (FN AMP) input terminal.	Connected to PIN diode A + C.
5	FPI	I	Main beam I-V amp (FP AMP) output terminal.	Connected to PIN diode B + D.
6	LDO	O	Laser diode amp (LD AMP) output terminal.	Connected to laser diode circuit.
7	HDI	I	Monitor photodiode amp (MP AMP) input terminal.	Connected to monitor photodiode.
8	RFN	I	RF amp (RF AMP) inverted input terminal.	Connected to RFO via feedback resistor.
9	RFO	O	RF amp (RF AMP) output terminal.	
10	RFI	I	RF ripple signal generator input terminal.	Connected to RFO via CR.
11	VREF	O	Reference voltage output terminal (+2.1V).	
12	RFRP	O	RF ripple signal output terminal.	
13	SBAD	O	Scratch detect signal output terminal.	
14	FEB	I	Focusing error balance adjustment input terminal.	Semi-fixed resistor for adjustment is connected.
15	FEO	O	Focusing error amp (FE AMP) output terminal.	Resistor for gain adjustment is connected.
16	SEL	I	Analog switch control signal input terminal.	
17	VEE	-	Power supply terminal.	Connected to GND.
18	FSN	I	Focus output amp (FS AMP) inverted input terminal.	Connected to FSO via feedback CR.
19	FSO	O	Focus output amp (FS AMP) output terminal.	
20	COSC	O	Capasitor connection terminal for focus search signal generation.	CR are connected.

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## CIRCUIT DESCRIPTION

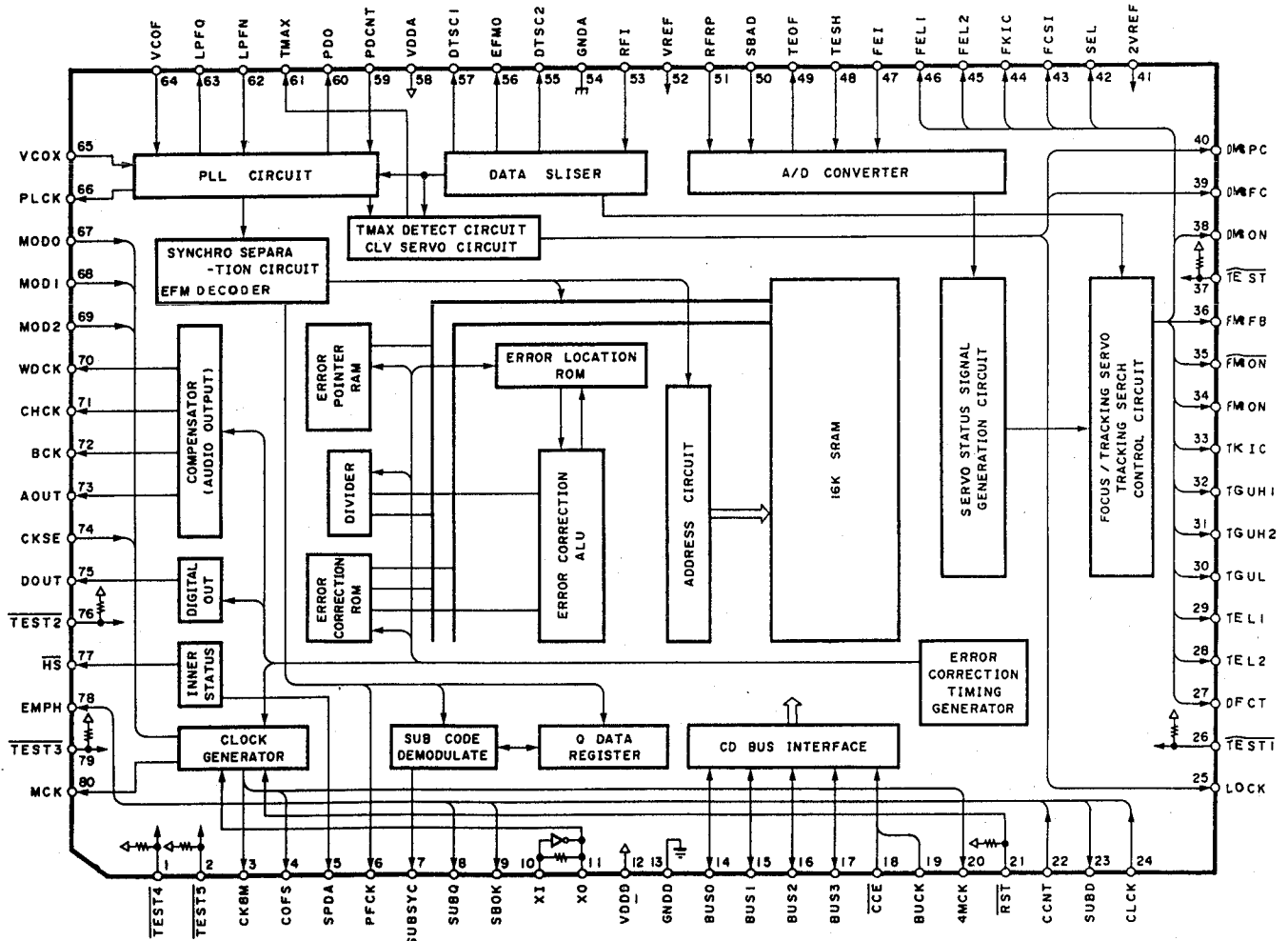
Pin No.	Symbol	I/O	Function	Remark
21	OSCI	I	Built-in current supply control input terminal for focus search signal generation.	
22	GND	—	Ground terminal.	
23	Vcc	—	Power supply terminal (+5V).	
24	DMEP	I	Disc motor amp (DM AMP) input terminal.	
25	DMEN	I	Disc motor amp (DM AMP) inverted input terminal.	
26	DMEO	O	Disc motor amp (DM AMP) output terminal.	
27	DMPO	O	Disc motor drive amp (DM AMP) output terminal.	
28	PVR	I	Drive amp reference voltage input terminal.	Connected to VREF.
29	FMPO	O	Feed motor drive amp (FMP AMP) output terminal.	
30	FMEO	O	Feed motor amp (FM AMP) output terminal.	
31	FMEN	I	Feed motor amp (FM AMP) inverted input terminal.	
32	FMEP	I	Feed motor amp (FM AMP) input terminal.	
33	FAPO	O	Focus actuator drive amp (FMP AMP) output terminal.	
34	2VRO	O	2VREF amp (2VREF AMP) output terminal.	Connected to 2VRP via external output Tr.
35	2VRP	I	2VREF amp (2VREF AMP) input terminal.	
36	2VRN	I	2VREF amp (2VREF AMP) inverted input terminal.	
37	TS2O	O	Tracking servo amp 2 (TS2 AMP) output terminal.	
38	TS2N	I	Tracking servo amp 2 (TS2 AMP) inverted input terminal.	
39	TS2P	I	Tracking servo amp 2 (TS2 AMP) input terminal.	
40	TS1O	O	Tracking servo amp 1 (TS1 AMP) output terminal.	
41	TS1N	I	Tracking servo amp 1 (TS1 AMP) inverted input terminal.	Connected to TS1O via feedback CR.
42	TS1P	I	Tracking servo amp 1 (TS1 AMP) input terminal.	
43	TSO	O	Tracking output amp (TS AMP) output terminal.	
44	TSN	I	Tracking output amp (TS AMP) inverted input terminal.	Connected to TSO via feedback CR.

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## CIRCUIT DESCRIPTION

### 3. Signal processor : TC9236AF (X32-2210) IC2

#### 3-1. Block diagram



#### 3-2. Terminal function (TA9236AF)

Pin No.	Symbol	I/O	Function	Remark
1	TEST4	I	Test pin. Normally "H" or Open.	With pull-up resistor.
2	TEST5	I	Test pin. Normally "H" or Open.	With pull-up resistor.
3	CK8M	O	8M clock output terminal.	
4	COFS	O	Correction frame cycle signal output terminal. 7.35kHz.	
5	SPDA	O	Processor status signal output terminal. Correction processing check result, memory buffer capacity, etc.	
6	PFCK	O	Playback frame cycle signal output terminal. 7.35kHz.	
7	SUBSYC	O	Subcode sync signal output terminal.	
8	SUBQ	O	Subcode Q data output terminal.	
9	SBOK	O	Subcode Q data CRC check result output terminal. "H" when check result is OK.	
10	XI	I	X'tal resonator connection terminals.	
11	XO	O	X'tal resonator connection terminals.	
12	VDDD	-	Digital power supply terminal (+5V).	
13	GNDD	-	Digital grounding terminal.	
14	BUS0	I/O	Command and data send / receive I/O terminals.	Schmitt inputs.
17	BUS3	I/O	Command and data send / receive I/O terminals.	Schmitt inputs.
18	CCE	I	Command and data send / receive Chip Enable signal input terminal. "L" for making the bus line active.	

# KDC-67R/68R

## CIRCUIT DESCRIPTION

Pin No.	Symbol	I/O	Function	Remark			
19	BUCK	I	Command and data send / receive clock input terminal.				
20	4MCK	O	4M clock output terminal (4.2336MHz).				
21	RST	I	Reset input terminal. "L" for internal system reset.	With pull-up resistor.			
22	CCNT	I	Subcode Q data control bit update inhibit signal input terminal. "H" for inhibiting update.	Emphasis, copy and channel information.			
23	SUBD	O	Subcode P – W output terminal.				
24	CLKC	I	Subcode P – W data read clock input terminal.				
25	LOCK	O	Lock status output terminal. Goes "L" when the sync pattern in EFM signal of overrun detection data has not been detected for 17ms.				
26	TEST1	I	Test pin. Normally "H" or OPEN.	With pull-up resistor.			
27	DFCT	O	Defect detect signal output terminal. VREF when detect is detected, HiZ in normal case.				
28, 29	TEL2, 1	O	Tracking gain adjustment analog switch output terminals. VREF or HiZ.				
30	TGUL	O	Analog switch output terminal for switching the tracking servo loop phase compensator (low). HiZ (increased gain) when a shock is detected, VREF in normal case.				
31	TGUH2	O	Analog switch output terminal for switching the tracking servo loop phase compensator (medium and high). HiZ (increased gain) when a shock is detected, VREF in normal case. TGUH1 is used in normal-speed playback, and TGUH2 is used in double-speed playback.				
32	TGU1						
33	TKIC	O	Tracking actuator kick signal output terminal. "H" for kicking toward the outer edge. "L" for kicking toward the inner edge.				
34	FMON	O	Analog switch output terminals for switching feed servo ON / OFF.				
35	FMON		Feed servo		FMON	FMON	
			ON		HiZ	VREF	
		OFF	VREF	HiZ			
36	FMFB	O	Feed motor FWD / BWD feed control signal output terminal. "H" for feed toward the outer edge. "L" for feed toward the inner edge.	3-level output.			
37	TEST	I	Test pin. Normally "H" or OPEN.	With pull-up resistor.			
38	DMON	O	Analog switch output terminal for switching the disc motor driver gain.				
39	DMFC	O	Disc motor CLV servo AFC signal output terminal.	3-level output.			
			Command		DMFC output	Operation	
			DMFK		H	Motor acceleration	
			DMSV		PWH	CLV servo ON	
			DMBK		L	Motor deceleration	
	DMOFF	VREF	CLV servo OFF				
40	DMPC	O	Disc motor CLV servo APC signal output terminal.	3-level output.			
41	2VREF	I	Double reference voltage input terminal (VREF x 2).				
42	SEL	O	Servo mode select signal output terminal.	3-level output.			
			SEL		LD ON / OFF	Focusing servo	Operation mode
			L		OFF	OFF	LD OFF
			HiZ		ON	OFF	Focusing search
			H	ON	ON	Normal play	
43	FCSI	O	Focus actuator drive signal output terminal for focus search mode.	3-level output.			
			Command		FCSI output	Operation	
			FORST		H	Lens gets apart from disc.	
			FOSET		L	Lens gets closer to disc.	
			Other	HiZ	Other operation than focus search.		

# KDC-67R/68R

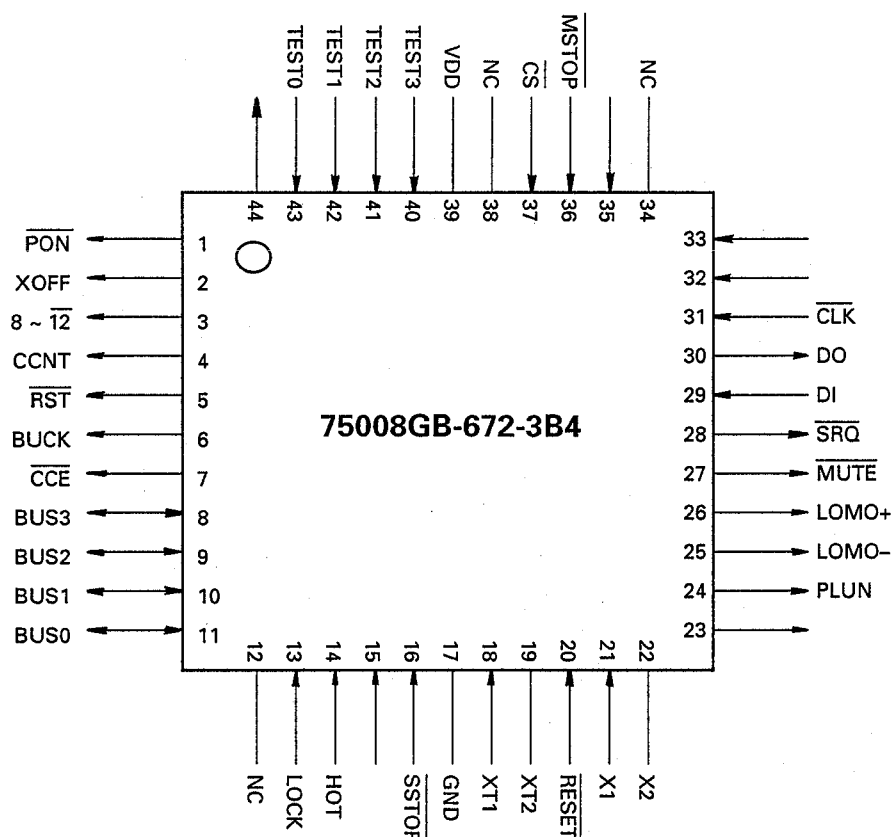
## CIRCUIT DESCRIPTION

Pin No.	Symbol	I/O	Function	Remark
44	FKIC	O	Focus actuator drive signal output terminal for focus gain adjustment mode.	3-level output.
			Other      HiZ      Other operation than focus search.	
			Command      FKIC output      Operation	
			FGASR      H      Lens gets apart from disc.	
			FGASS      L      Lens gets closer to disc.	
			Other      HiZ      Other operation than focus gain adjustment	
45, 46	FEL2, 1	O	Analog switch output terminals for focus gain adjustment.	
47	FEI	I	Focusing error signal input terminal.	Analog input.
48	TESH	I	Analog switch input terminal for tracking error signal sample & hold operation.	
49	TEOF	O	Analog switch output terminal for tracking servo operation ON / OFF. VREF when tracking servo is OFF.	
50	SBAD	I	Sub-beam addition signal input terminal.	Analog input.
51	RFRP	I	RF ripple signal input terminal.	
52	VREF	I	Reference voltage input terminal (+2.2V).	
53	RFI	I	RF signal input terminal.	Analog input.
54	GND A	-	Analog ground terminal.	
55	DTSC	O	EFM signal inverted output terminal for data slice control.	
56	EFMO	O	EFM signal monitoring output terminal.	Binary data.
57	DTSC1	O	EFM signal output terminal for data slice control.	
58	VDDA	-	Analog power supply terminal (+5V).	
59	PDCNT	I	PDO output control terminal. "L" for forcing PDO output to HiZ.	
60	PDO	O	EFM / PLCK phase error signal output terminal.	3-level output.
61	TMAX	O	TMAX signal output terminal. HiZ when system-locked.	3-level output.
			TMAX cycle      TMAX output	
			Longer than specified cycle      L	
			Shorter than specified cycle      H (2VREF)	
			Equal to specified cycle      HiZ	
62	LPFN	I	LPF amp inverted input terminal for PLL.	
63	LPFO	O	LPF amp output terminal for PLL.	
64	VCOF	I	VCO filter terminal.	
65	VCOX	I	External VCO clock input terminal.	
66	PLCK	O	Playback data read clock output terminal.	
67	MOD0	I	Internal operation mode setting input terminals.	
68	MOD1			
69	MOD2			
70	WDCK	O	Word clock output terminal. Normally 88.2kHz.	
71	CHCK	O	Channel clock output terminal. Normally 44.1kHz.	
72	BCK	O	Bit clock output terminal. Normally 1.4112MHz.	
73	AOUT	O	Audio data output terminal.	
74	CKSE	I	Internal clock select terminal.	
75	DOUT	O	Digital output terminal.	
76	TEST2	I	Test pin. Normally "H" or Open.	With pull-up resistor.
77	HS	O	High-speed monitoring output terminal. "L" for double-speed operation.	
78	EMPH	O	Emphasis ON / OFF indication signal output terminal. "H" for emphasis ON.	
79	TEST3	I	Test pin. Normally "H" or Open.	With pull-up resistor.
80	MCK	O	Master clock output terminal.	

# CIRCUIT DESCRIPTION

## 4. Mechanism Microprocessor : 75008GB-672-3B4 (X32-2210) IC6

### 4-1. Terminal connection diagram



### 4-2. Terminal descriptions

Pin No.	Pin name	Also used as	I/O	Port name	Description
1	P72	KR6	O	PON	+5V POWER CONTROL. For TC9236F, etc. "L" for ON.
2	P71	KR5	O	XOFF	SERVO CLOCK OFF (16MHz). "H" for OFF.
3	P70	KR4	O	8~12	DISC SIZE SW. "H" for 8cm
4	P63	KR3	O	CCNT	TC9236F SUB-CODE UPDATE INHIBIT OUT. "H" for inhibit.
5	P62	KR2	O	RST	TC9236F RESET. "L" for reset.
6	P61	KR1	O	BUCK	TC9236F COMMAND / DATA COMMUNICATION CLOCK.
7	P60	KR0	O	CCE	TC9236F CHIP ENABLE. "L" for Active.
8~11	P53~50		I/O	BUS3~0	TC9236F COMMAND / DATA COMMUNICATION BUS.
12	NC				
13	P43		I	LOCK	EFM LOCK SIGNAL FROM TC9236F. "H" for lock.
14	P42		I	HOT	TEMPERATURE RISE DETECT. "H" for temperature rise.
15	P41		I		Not used. Connected to GND.
16	P40		I	SSTOP	SLED LIMIT SW. "L" for inner limit.
17	Vss			GND	Connected to GND.
18	XT1		I	XT1	SUB-CLOCK INPUT. Not used, connected to GND.
19	XT2		O	XT2	OPEN



# KDC-67R/68R

## CIRCUIT DESCRIPTION

Pin No.	Pin name	Also used as	I/O	Port name	Description
20	RESET		I	RESET	$\mu$ -COM RESET INPUT. "L" for reset.
21	X1		I	X1	MAIN CLOCK. Connect a 4.19MHz oscillator.
22	X2		O	X2	↑
23	P33		O	SEARCH	Search status output. "L" during search.
24	P32		O		
25	P31		O	LOMO-	CD MECHANISM LOAD MOTOR -.
26	P30		O	LOMO+	CD MECHANISM LOAD MOTOR +.
27	P81		O	MUTE	MUTE OUT. "L" → MUTE ON.
28	P80		O	SRQ	COMMUNICATION REQUEST TO SYSTEM CONTROLLER, "L" → Requesting.
29	P03	SI / SB1	I	DI	SERIAL DATA INPUT FROM SYSTEM CONTROLLER.
30	P02	SO / SB0	O	DO	SERIAL DATA OUTPUT TO SYSTEM CONTROLLER.
31	P01	SCK	I	CLK	SERIAL COMMUNICATION CLOCK FROM SYSTEM CONTROLLER.
32	P00	INT4	I		Not used. Connected to GND.
33	P13	TI0	I		Not used. Connected to GND.
34	NC				
35	P12	INT2	I		Not used. Connected to GND.
36	P11	INT1	I	MSOP	MECHANISM $\mu$ -COM STOP. "L" → Stop and oscillation end.
37	P10	INT0	I	CS	COMMUNICATION REQUEST FROM SYSTEM CONTROLLER. "L" → requesting.
38	NC				
39	Vdd			Vdd	POWER +5V
40	P23		I	TEST3	TEST INPUT TERMINAL 3. "H" → Test mode.
41	P22		I	TEST2	TEST INPUT TERMINAL 2. "H" → Test mode.
42	P21		I	TEST1	TEST INPUT TERMINAL 1. "H" → Test mode.
43	P20	PTO0	I	TEST0	TEST INPUT TERMINAL 0. "H" → Test mode.
44	P73	KR7	O		OPEN

# KDC-67R/68R

## CIRCUIT DESCRIPTION

### 4-3. Mechanism microprocessor test mode

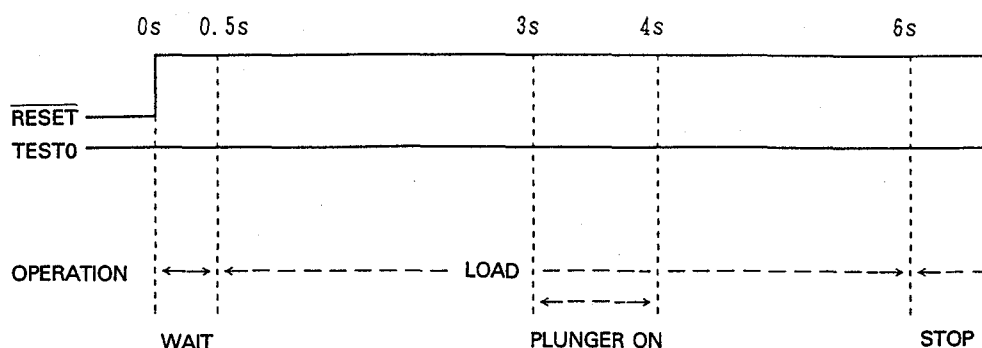
This test modes are provided to allow the mechanism microcomputer checking the servo system without the help of the system controller, for example when the mechanism deck is manufactured, etc. It also allows the mechanism microcomputer alone to load or eject a disc.

#### • Setting methods and operations

Regardless of the system controller, the test mode can be set by reading the test terminals at the time of resetting. The three kinds of modes as described below can be set according to the statuses of the four test terminals. In any test mode, it is required that the servo and mechanism power supplies have already been turned on before resetting.

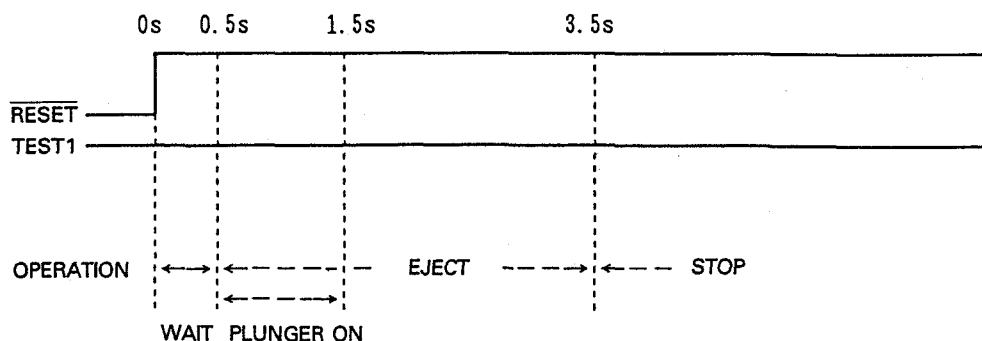
#### (1) Self loading

Loading starts when the TEST0 terminal is "H" at the time of resetting. However, as the mechanism microcomputer does not check the sensor, the loading always starts with the same timing as shown below. Therefore, if the chucking is correct or not can be checked visually or by monitoring DOWN SW.



#### (2) Self-ejection

Ejection starts when the TEST1 terminal is set to "H" at the time of resetting. Similarly to the case of self-loading, the timing is constant as shown below.



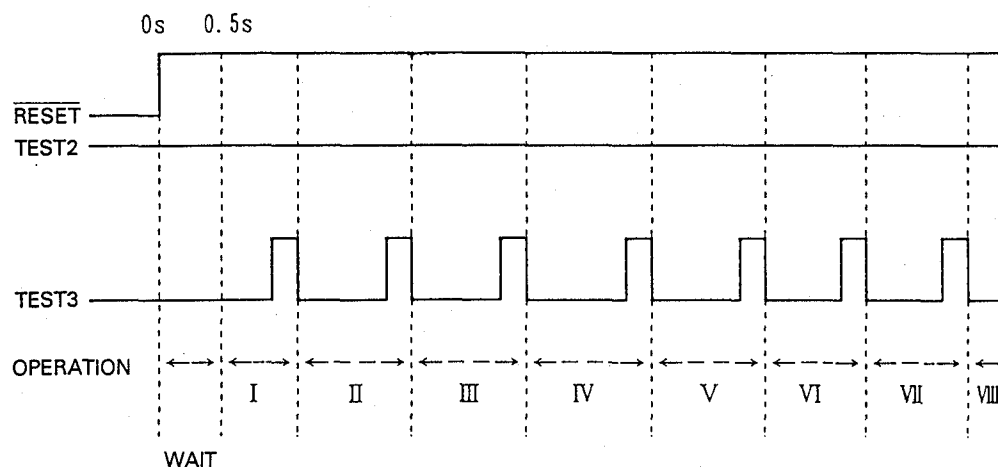
## CIRCUIT DESCRIPTION

### (3) Servo testing

The servo check mode can be entered when the TEST2 terminal is set to "H" at the time of resetting. Under this condition, applying a "H" pulse to the TEST3 terminal starts sequential operations of the mechanism and servo system, allowing checking of the operations. If both the TEST2 and TEST3 terminals are set to "H" at the time of resetting, the operations shown below occur automatically, and the last track will be played.

Due to the chattering cutting, only pulses in the range from 100ms to 1sec. are accepted as the input to the TEST3 terminal. The servo-related settings are constant with 12cm discs.

**Note :** The test mode can be canceled by resetting or entering the stop mode. Communications with the system controller is not performed in the test mode. In case the test terminals should go "H" together, the priority is set in the order of TEST0, TEST1 then TEST2.



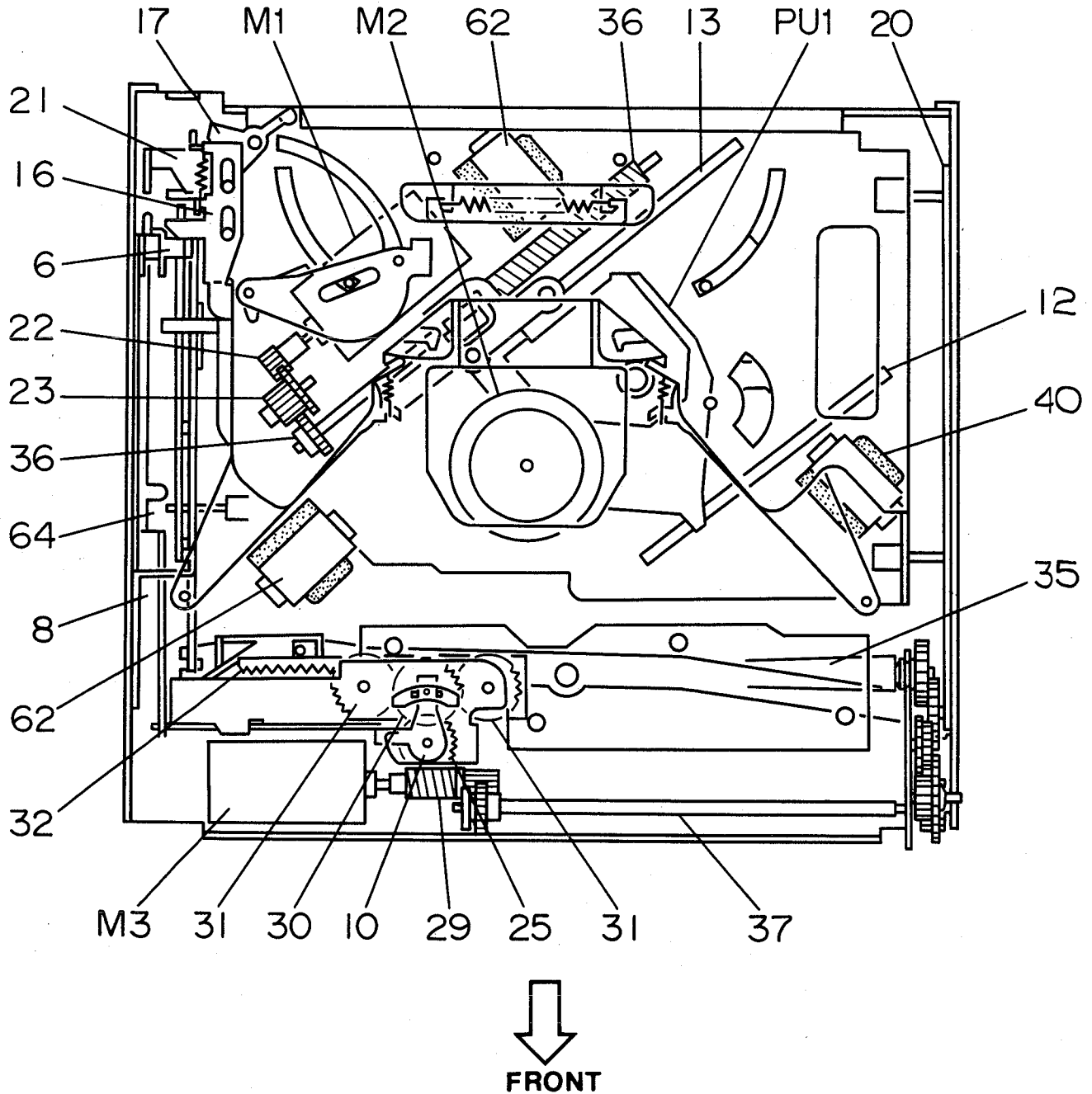
- |   |                                   |
|---|-----------------------------------|
| I. Stop. No operation until a pulse is input. | V. Disc motor kick, CLV ON.       |
| II. Feed motor set to the origin point.       | VI. Tracking and feed servo ON.   |
| III. Laser diode ON.                          | VII. First track play.            |
| IV. Focus servo ON.                           | VIII. Last track search and play. |

Because of the chattering cutting, only pulses with durations of 100ms to 1sec. are accepted in TEST3. The servo-related setting are constant with 12cm disc.

**Note :** The test mode can be released by resetting the microcomputer or entering the stop mode. Communications with the system controller are not performed in the test modes. If more than one test terminal is "H" simultaneously, the test mode is selected in order of priority from TEST0 to TEST1 and TEST2.

# KDC-67R/68R

## MECHANISM OPERATION DESCRIPTION



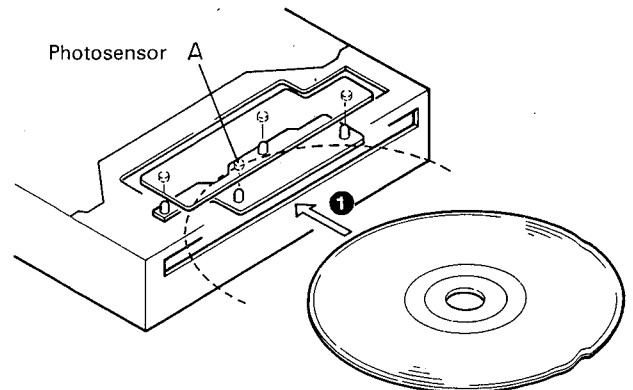
**Note :** Figures in the bracket ( ) in the operation description or accompanied with the part name in the diagram show the reference numbers in the Exploded View.

# KDC-67R/68R

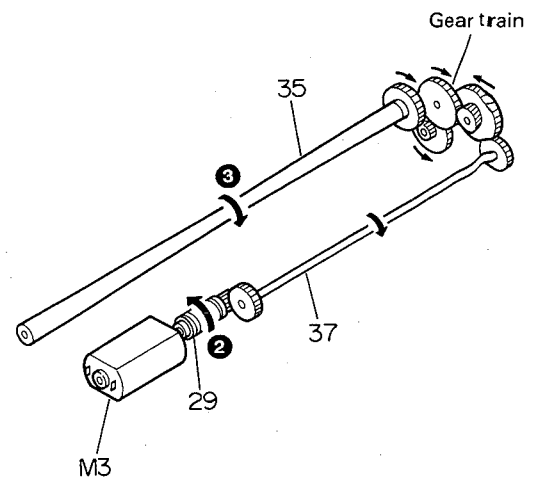
## MECHANISM OPERATION DESCRIPTION

### Loading

1. A CD is inserted (①).
2. Photosensor A detects the disc insertion.
3. The loading motor (M3) starts rotation according to the microcomputer instruction.

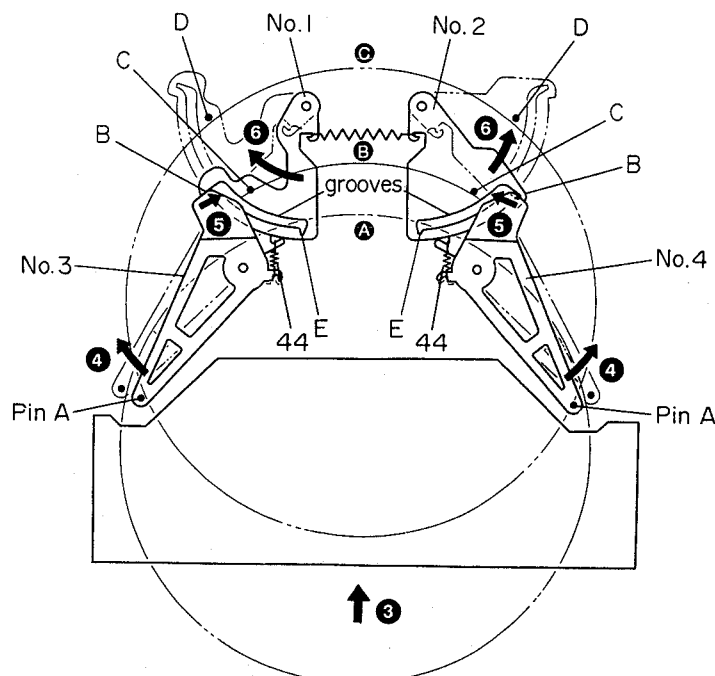


4. The rotation is transmitted through the worm gear (29), drive shaft (37) and gear train, up to the loading roller (35). (②)
5. The CD is pulled by the friction of the rubber roller (③).



6. When the CD is advanced to position A pins "A" installed on levers 3 and 4 are widened by the disc periphery. As lever 3 rotates clockwise and lever 4 rotates counterclockwise, (④) lock claw "B" is disengaged from the lock consisting of the lock grooves on levers 1 and 2 (⑤).

7. When the CD contacts positioning pins "C" installed on levers 1 and 2, levers 1 and 2 are pushed by the CD, causing lever 1 to rotate clockwise and lever 2 to rotate counterclockwise. (The position of the CD at this time is shown as position B.) (⑥).



# KDC-67R/68R

## MECHANISM OPERATION DESCRIPTION

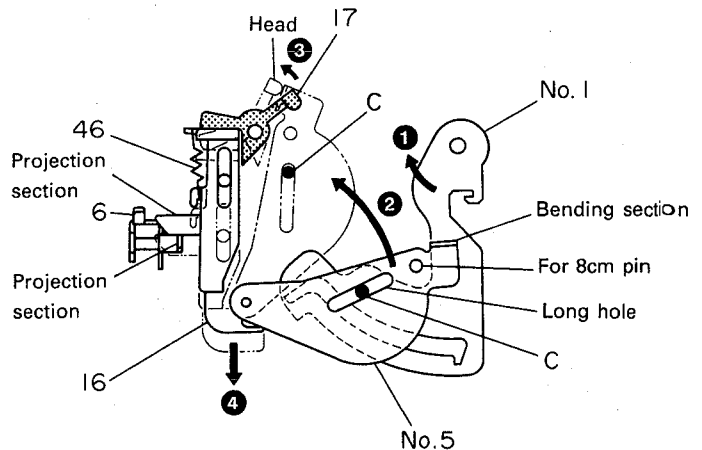
8. As CD advances more, levers 1 and 2 rotate more, the positioning pin attains position "D", and the CD comes to position ③ which is above the turntable.
9. Presently, levers 1 and 2 are located in the position with which lock position "E" on the opposite sides of their lock grooves are engaged with lock claws "B" of levers 3 and 4. As the CD has passed pins "A" of levers 3 and 4, levers 3 and 4 are re-

turned to their original positions by spring (44). As a result, levers 1 and 2 are locked by the lock claws of levers 3 and 4. This timing is the completion of positioning of CD.

10. When the disc is a 8cm disc, levers 3 and 4 do not operate, so the levers 1 and 2 are not unlocked and the CD is positioned at the position of pins "C".

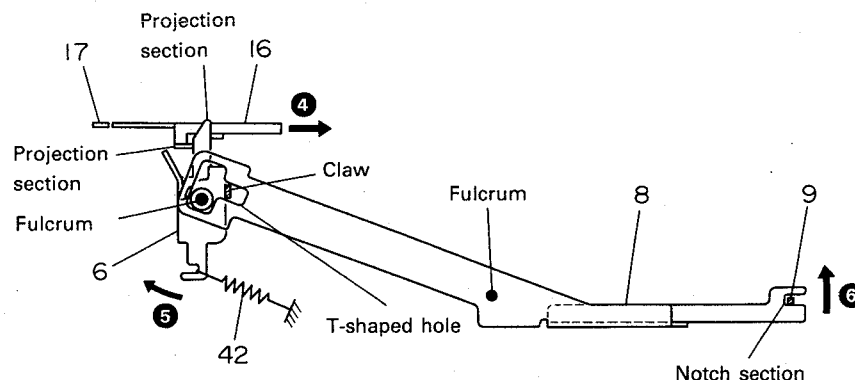
### 2. Chucking

1. When lever 1 rotates clockwise (①) in the loading operation described above, lever 5, which is connected via positioning pin "C" and long hole-shaped guide groove, is rotated counterclockwise by the action of positioning pin "C" (②).
2. The "bending section" on the tip of lever 5 pushes the "head" of lever 17, which starts to rotate counterclockwise (③).
3. The "projection section" on the other side of lever 17 is in contact with the slide lever 16. When lever 17 rotates counterclockwise, the slide lever 16 is slid in the lower direction of the figure (④).



4. The "projection section" of the slide lever 16 is designed to come in contact with the projection section of lever 6, which is rotated clockwise when the slide lever moves (⑤).

5. The claw installed on lever 6 is engaged with the "T-shaped hole" on lever 8, which is rotated counterclockwise when lever 6 rotates clockwise (⑥).



## MECHANISM OPERATION DESCRIPTION

6. In Fig. 2-3, the worm wheel (25) held on the same shaft as the friction arm (10) is rotated clockwise by the rotation of the worm gear described above (7).

The spur gear integrated with the worm wheel (25) is meshed with the planetary gear (30), and rotates counterclockwise. A leaf spring, which is not shown in the figure, is inserted between the planetary gear (30) and the friction arm (10) in order to generate a friction force between them. This friction force ensures that the friction arm (10) rotates always clockwise (8).

7. The "notch section" on the tip of lever 8 is engaged with the tip of lever 9.
8. The "tip section" on the other end of lever 9 is contacted by the "projection section" of the friction arm (10) described before. This contact prevents the clockwise rotation of the friction arm.
9. As a result of the sequence of operations starting with the movement of lever 1 described before, the "notch section" of lever 8 rises, lever 9 rotates clockwise (6), and the contact of the projection section of the friction arm is separated. This frees the friction arm (10) and it starts clockwise rotation (8).

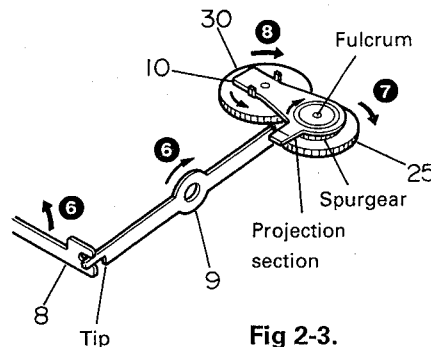
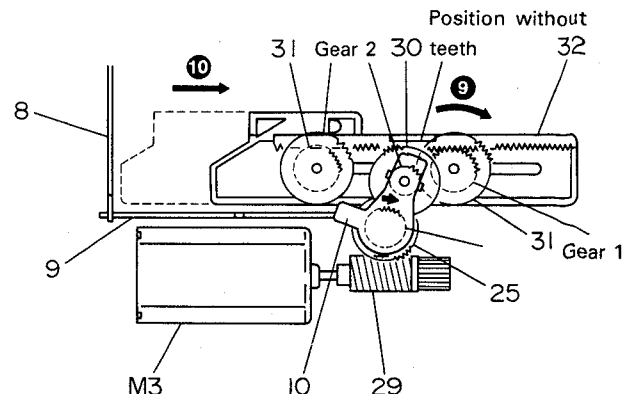


Fig 2-3.

10. When the friction arm (10) rotates clockwise, the planetary pinion of the planetary gear (30) is meshed with gear 1, which starts clockwise rotation (9). As gear 1' integrated with gear 1 is meshed with the rack gear (32), the rack gear starts to move toward the right (10).

When the rack gear moves further toward the right, gear 1' and the rack gear are disengaged at the position without teeth, and the rack gear stops to move.

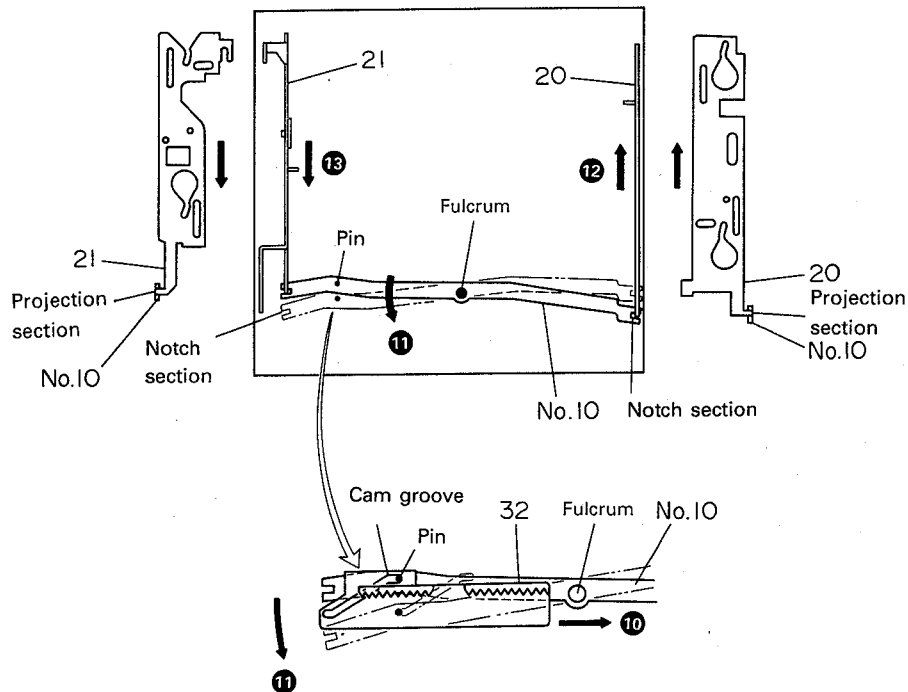


# KDC-67R/68R

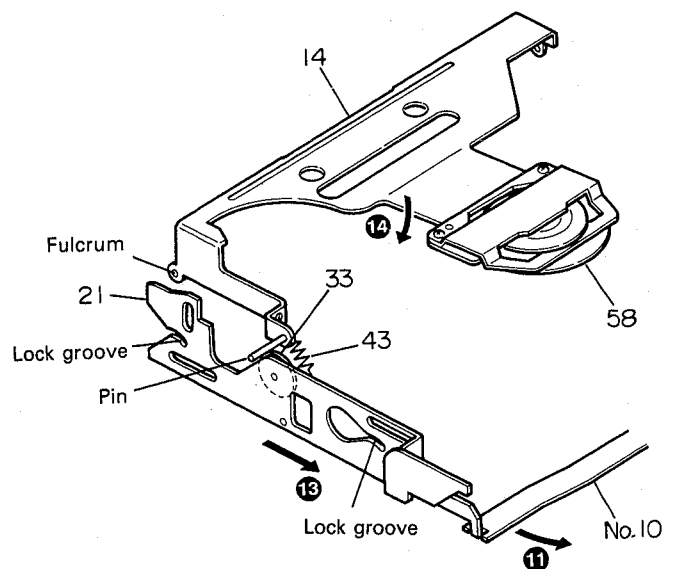
## MECHANISM OPERATION DESCRIPTION

11. The cam groove provided on the rack gear (32) activates the pin of lever 10 supported by a shaft on the chassis, and lever 10 rotates counterclockwise (11).
12. Into the notch sections on both ends of lever 10, the projection sections of cam 20 and cam 21 are engaged.

Cams 20 and 21 are held by the chassis so that they can slide freely. When lever 10 rotates counterclockwise, cam 20 moves upward (12) in the figure and cam 21 moves downward in the figure (13).



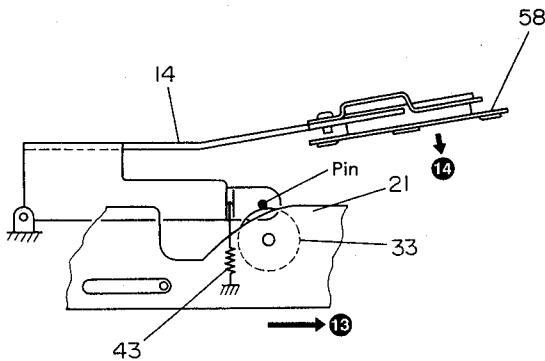
13. A roller (33) is supported by a shaft above cam 21. The roller supports the pin on the clamp lever (14) so the clasper (58) is in the up position. When cam 21 moves, the roller is separated from the pin, and the clamp lever is moved downward by the force of the spring (43) to fix the CD on the turntable (14).



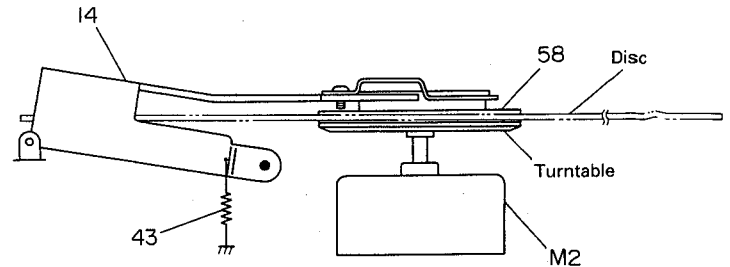


# KDC-67R/68R

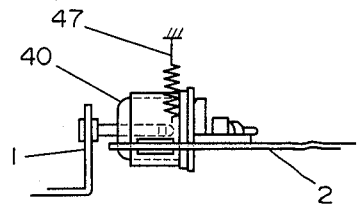
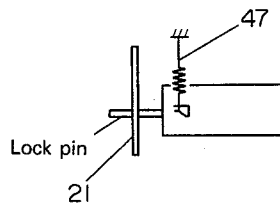
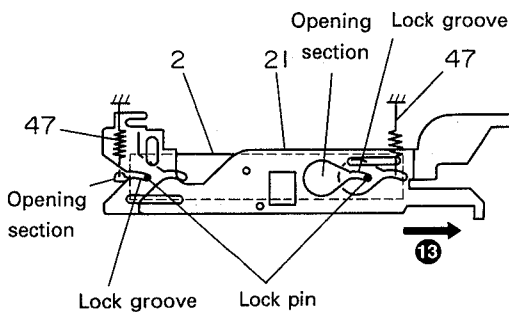
## MECHANISM OPERATION DESCRIPTION



14. Cam 21 has a lock groove, in which the lock pin of the pickup chassis (2) is engaged. The pickup chassis is fixed. When cam 21 moves, the lock pin is relatively moved to the opening section. This frees the pickup chassis, which is held in the floating status by the suspension spring (47) and damper (40).



15. Cam 20 also has a lock groove and opening similarly to cam 21. It is subject to the lock and unlock operations between the lock pin on the pickup chassis.

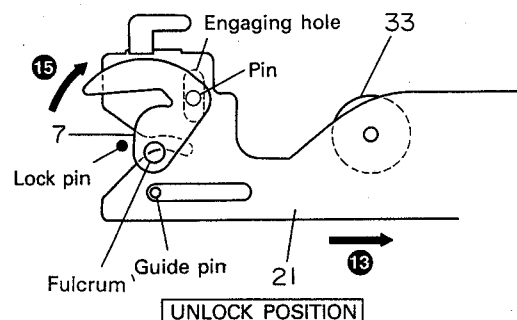
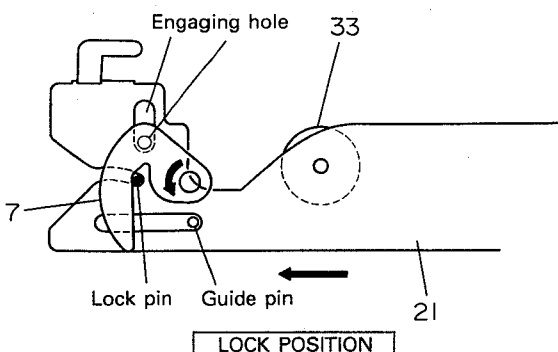


16. The lock lever (7) is supported by a shaft on the chassis, and the pin (actually a projection with burrs) on the lock lever is engaged into the engaging hole on cam 21. The cam is held by the guide pin so that it can move freely toward the front or rear of the chassis.

17. Before loading of the CD, cam 21 is the lock position shown in the figure. In this position, the lock section of the lock lever (7) prevents, or locks, the horizontal movement of the lock pin of the pickup chassis (2).

When a CD is loaded as described before, cam 21 moves toward the right in the figure and the lock lever (7) starts clockwise rotation (15). This causes the lock section to move upward and the lock pin of the pickup chassis is freed. The horizontal movement of the pickup chassis is locked or unlocked based on the above.

18. Although not shown in the figure, a similar lock lever is also used with cam 20 to lock or unlock the front right side of the pickup chassis.



# KDC-67R/68R

## MECHANISM OPERATION DESCRIPTION

19. Cam 21 has a cam section which is in contact with drive pin 1 of the roller lever (18).

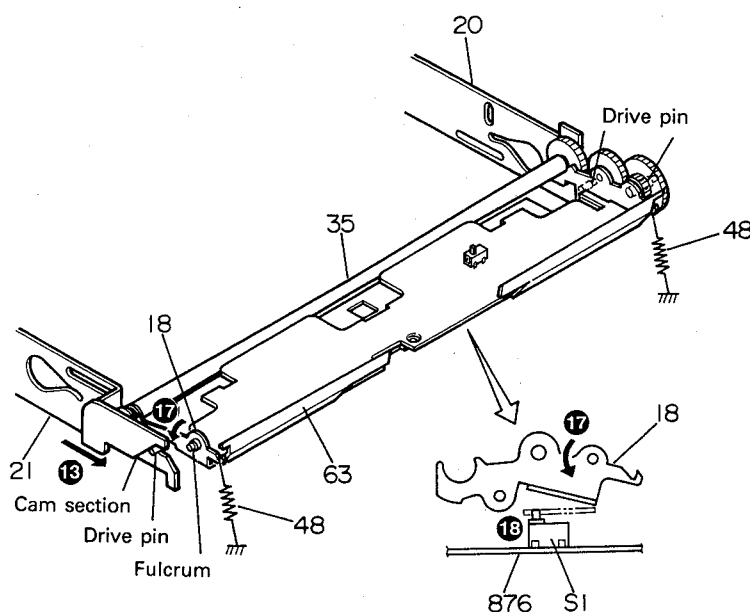
When a CD is loaded as described before, cam 21 moves toward the right in the figure, its cam section pushes the drive pin, and the roller lever (18) starts counterclockwise rotation. (The same operation occurs also with cam 20.) (17)

As a result, the loading roller (35) goes downward, the contact between the CD and the roller is separated, and the CD transport is stopped.

20. A switch (S1) is installed below the roller lever (18), and turned ON when the roller lever goes downward (18).

The microcomputer identifies the completion of chucking when this switch is turned ON. However, the motor rotation is continued for more about 0.5 second to allow a margin until the actions in other mechanisms terminate completely. After this, the motor (M3) rotation stops based on the judgment of the completion of chucking.

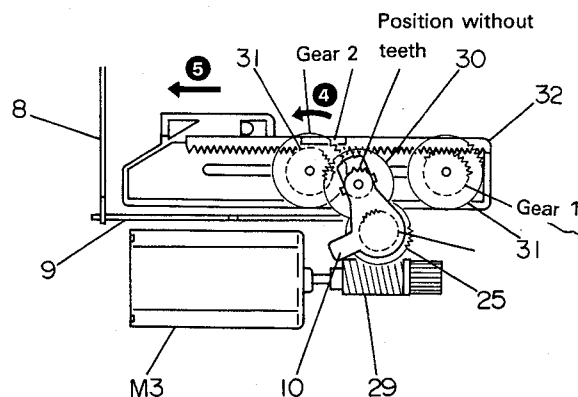
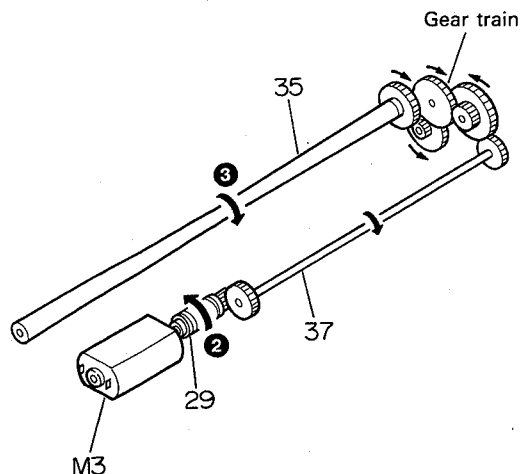
21. After the completion of chucking, the playback starts according to the microcomputer instruction.



### 3. Ejection

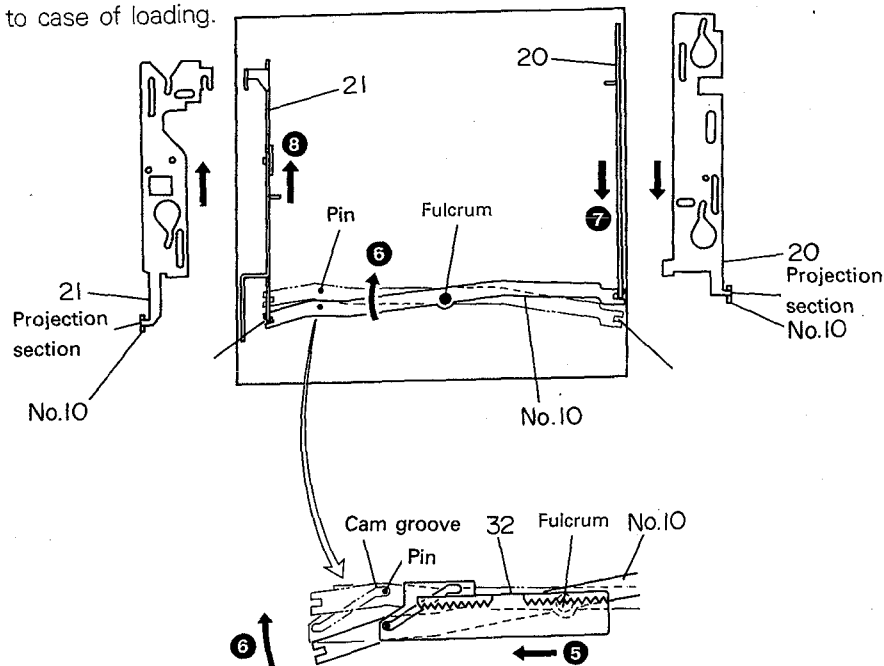
1. When the eject button is pressed, the loading motor (M3) starts inverse rotation (2).

2. The friction arm (10) rotates counterclockwise, and the rack gear (32) moves toward the left (4) (5).

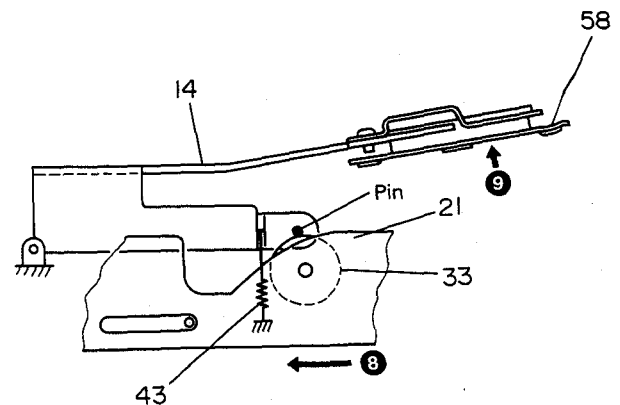


## MECHANISM OPERATION DESCRIPTION

3. Cam 20 and 21 lock the pickup chassis by acting in the opposite ways to case of loading.



4. The lift roller (33) pushes the clamp lever (14) upward, thereby moving the clasper (58) upward (9).
5. The loading roller (35) moves upward and the door moves downward. The disc is ejected by pressure.



### 4. Playback

1. When the disc is chucked and the DOWN switch (S1) is turned ON, the microcomputer checks the limit switch (\*1). If it is OFF, the sled motor (\*2) is rotated to feed the pickup toward the inner periphery and turn the switch ON.
2. When the limit switch is turned ON, the pickup is activated, the focusing servo then the tracking servo are applied, the spindle motor (M2) is rotated, and playback is started.
3. When the stop button is pressed, all servoes are

turned OFF while the pickup position is not changed.

4. When the eject button is pressed, the ejection operation is performed as described before. At the same time, the pickup is fed toward the inner periphery and stopped when the limit switch is turned ON.

\*1 Switch which is turned ON when the pickup is on the inner periphery position.

\*2 Motor which moves the pickup toward the inner

# KDC-67R/68R

## MECHANISM OPERATION DESCRIPTION

### 5. Mechanism operation timing

#### 5-1. Control terminals

Out put terminal

- ① Motor (+) terminal
- ② Motor (-) terminal

Input terminals

- ① Photosensor (A) terminal \*1
- ② Photosensor (B, D) terminal \*1
- ③ Photosensor (C) terminal \*1
- ⑤ DOWN switch \*2

\*1 Chattering shall be 20 ms.

\*2 Chattering shall be 30 ms.

#### 5-2 Loading operations

Loading start conditions

- Loading start from the status without disc : Loading starts when one of photosensors A, (B, D) and C is turned ON.
- Loading start from the status after completion of ejection of 12cm disc [when only photosensors A and (B, D) are ON] : Loading starts when photosensor C is turned ON.

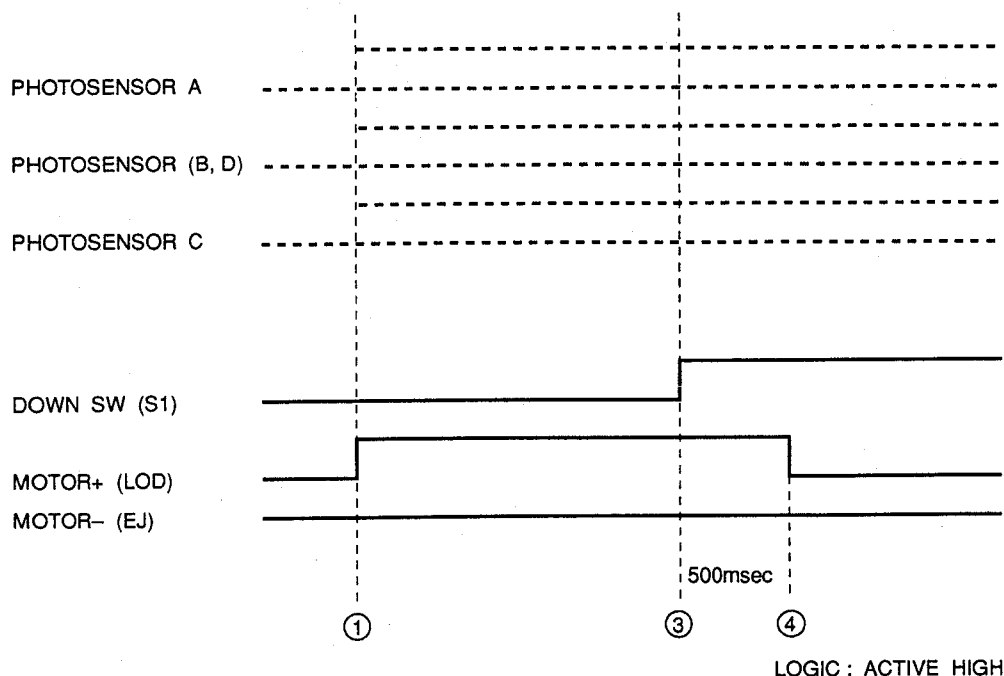
- Loading starts from the status after completion of ejection of 8cm disc [when only photosensor A is ON] : Loading starts when photosensor (B, D) is turned ON.

Loading control methods

- ① When one of the loading start conditions is met, the motor is driven toward the loading direction.
- ③ When the DOWN switch is turned ON, the motor is driven for 500ms, after which it is stopped,
- ④ Photosensors A and (B, D) check whether the disc is 8cm or 12cm.

Loading protection operation

- In case loading does not complete in 8 seconds after the start, the operation transits to ejection. If the ejection does not complete in 8 seconds again, the operation is stopped immediately.
- If all photosensors are OFF for 1 seconds in the period between the start and completion of loading, the loading is stopped based on the judgment that the disc has been removed.



# KDC-67R/68R

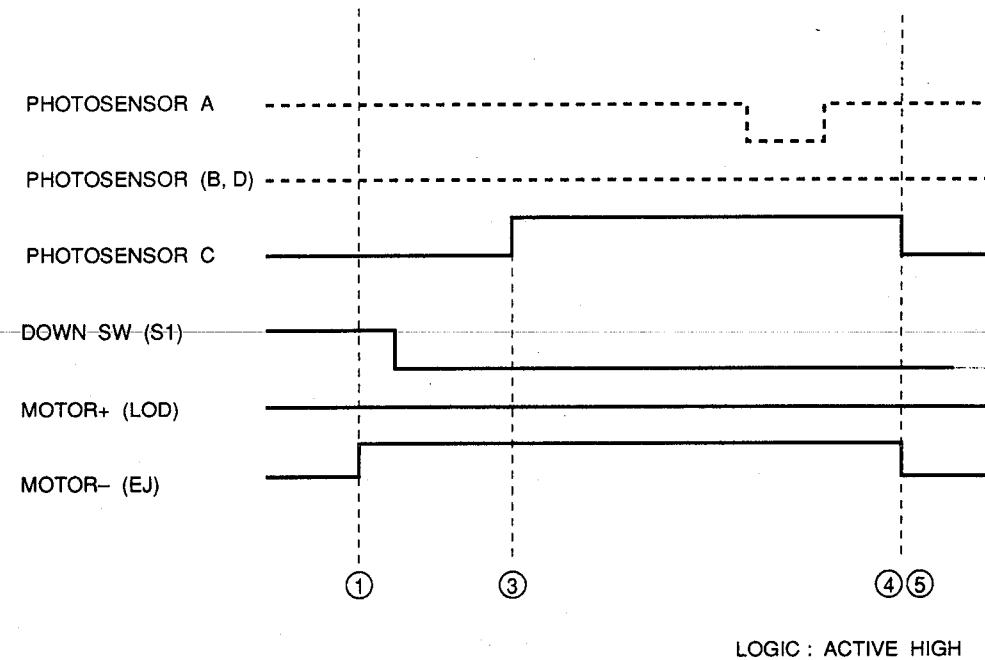
## MECHANISM OPERATION DESCRIPTION

### 5-3. Ejection operation

Ejection control methods

[1] Ejection control from the status in which 12cm disc is chucked

- ① The motor is driven in the ejection direction.
- ③ Photosensor C is turned ON.
- ④ Photosensor C is turned OFF.
- ⑤ The motor is stopped.



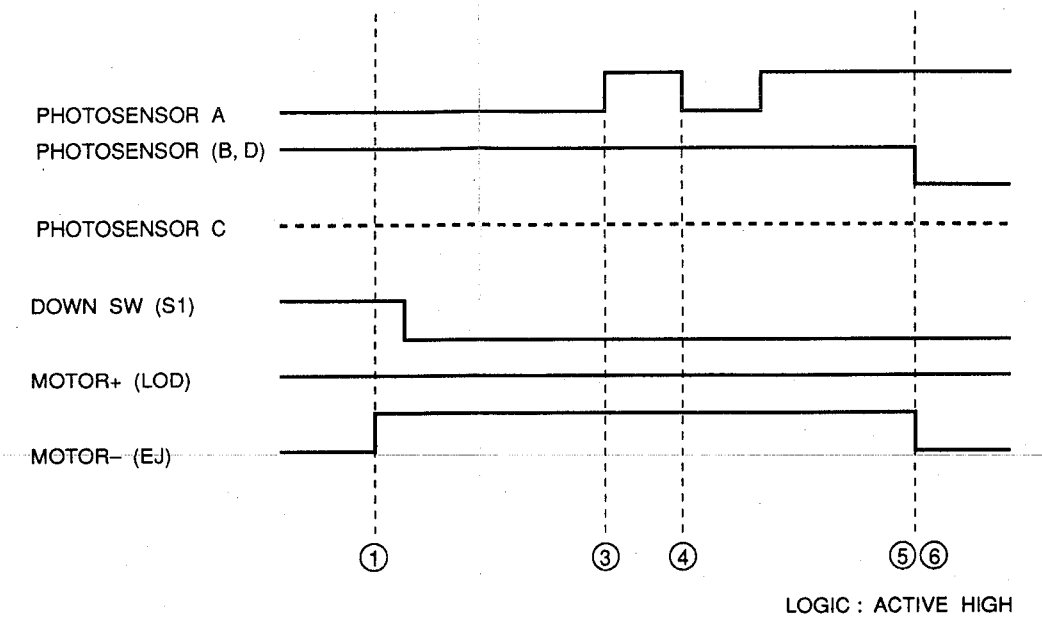
# KDC-67R/68R

## MECHANISM OPERATION DESCRIPTION

[2] Ejection control from the status in which 8cm disc is chucked

- ① The motor is driven in the ejection direction.
- ③ Photosensor A is turned ON.

- ④ Photosensor A is turned OFF.
- ⑤ Photosensor A is kept ON and photosensor (B, D) is turned OFF.
- ⑥ The motor is stopped.



# KDC-67R/68R

## MECHANISM OPERATION DESCRIPTION

[3] Ejection control from the status in disc is located in the middle

- In case the presence of disc can be identified with a photosensor : The loading completion status is set temporarily to identify the disc size, then ejection is restarted.
- In case the photosensors, END switch and DOWN switch are all OFF :

- (1) The motor is driven in the ejection direction for 500ms.
- (2) When a photosensor reacts, the loading completion status is set temporarily to identify the disc size, then ejection is restarted.

### Ejection protect operation

- In case ejection does not complete in 8 seconds after the start, the operation transits to loading. If loading does not complete in 8 seconds again, the operation is stopped immediately.
- If all photosensors are OFF for 1seconds in the period between the start and completion of ejection, the ejection is stopped based on the judgment that the disc has been removed.
- If the DOWN switch is ON while all photosensors are OFF, ejection is performed. (Because loading is possible even when disc is absent, for example in test mode. )

### 5-4. Momentary OFF during loading or ejection.

- Momentary OFF during loading : Loading is stopped temporarily. When the momentary OFF is released, loading is restarted from the same position.
- Momentary OFF during ejection : Ejection is stopped temporarily. When the momentary OFF is released, the loading completion status is set, the disc size is identified, and ejection is started again.

### 5-5. Acc ON/OFF during loading of ejection.

- Acc ON/OFF during loading : Loading is continued until completion. However, the protect timer is activated, and loading is stopped if the timer overflows.
- Acc ON/OFF during ejection : Ejection is continued until completion. However, the protect timer is activated, and ejection is stopped if the timer overflows.

### SUPPLEMENT RELATED TO LOADING/EJECTION OF DXM-200 (CD-MECHANISM)

#### 1. 8/12cm disc size identification method

The disc size is identified using photosensors A and (B, D) in the chucking completion status.

- A OFF, B/D OFF = 12cm
- A OFF, B/D ON = 8cm
- A OFF, B/D ON = 12cm (abnormal)
- A ON, B/D ON = 8cm (abnormal)

#### 2. Ejection in chucking status without disc.

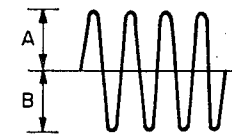
If ejection is started while the DOWN switch is ON, the motor keeps on running for more 700 milliseconds even if all photosensors are OFF, then the one-second timer for checking if all photosensors are OFF is started. Therefore, if ejection is started without disc, the motor should rotate for two seconds, making it possible to set the mechanism to the complete ejection status.

# KDC-67R/68R

## ADJUSTMENT

### 1. Tracking offset adjustment

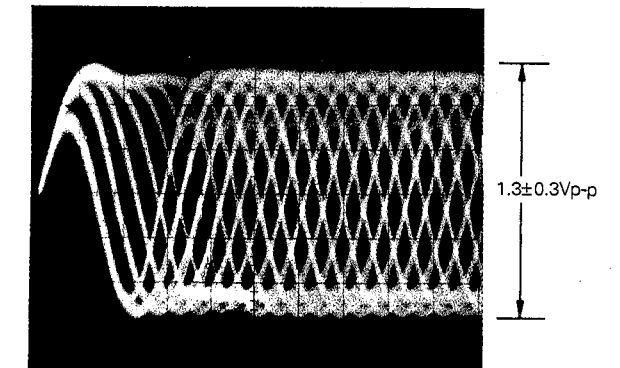
1. Connect a test jumper wire between the test point (TEST2) and (+5V).
2. Connect a test jumper wire between the test point (TOFF) and (Vref).
3. Connect an oscilloscope between the test point (TE) and (Vref).
4. Put the set into play mode by loading the disc.
5. Adjust VR2 so that the oscilloscope reading is symmetrical in relation to 0V.
6. After adjusting, reset 1 and 2 as original.



### 2. Focus offset adjustment

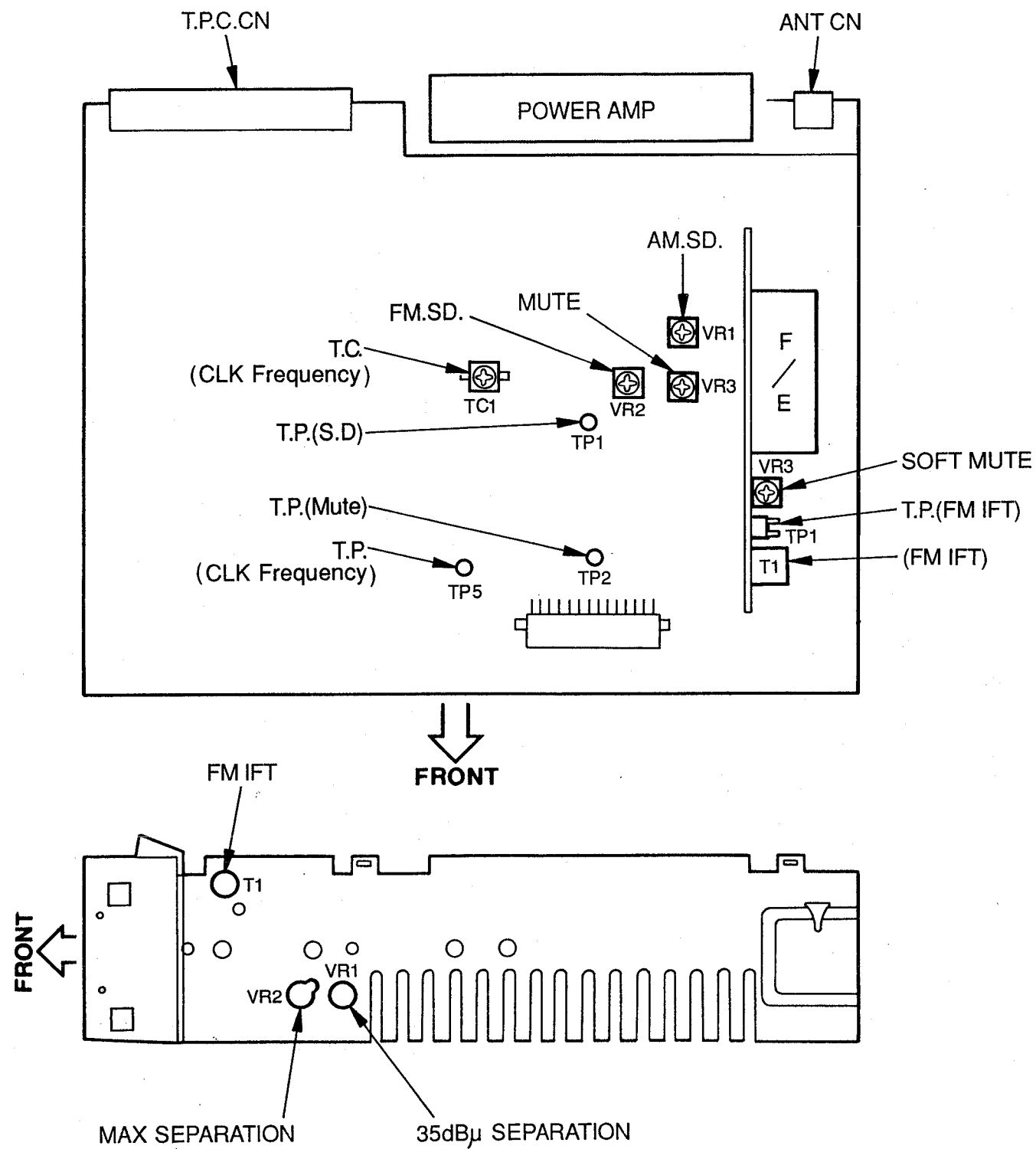
1. Connect an oscilloscope to the test point (RF).
2. Put the set into play mode by loading the disc.
3. Adjust VR1 so that the oscilloscope waveform of the pattern is good.  
A good eye pattern means that the diamond shape (◇) in the center of the oscilloscope can be clearly distinguished.

Volt/Div : 200mV  
Timer/Div : 0.5μsec.



# KDC-67R/68R

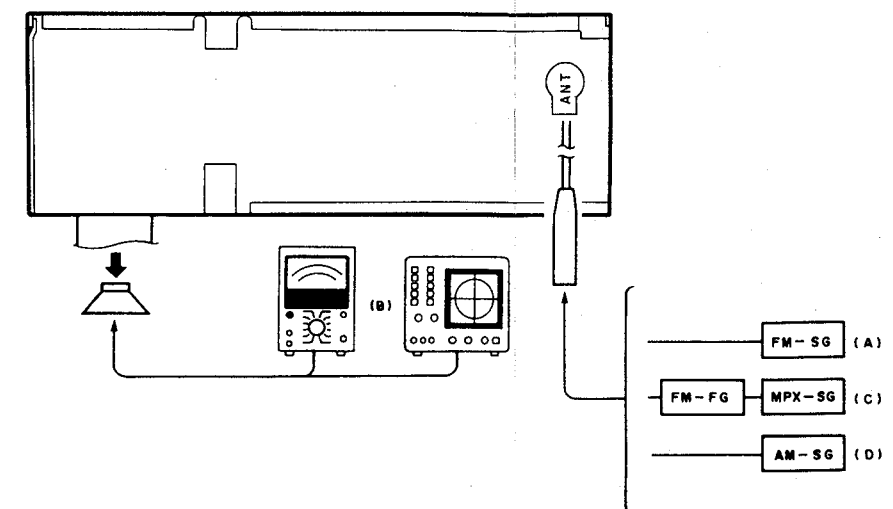
## ADJUSTMENT



# KDC-67R/68R

## ADJUSTMENT

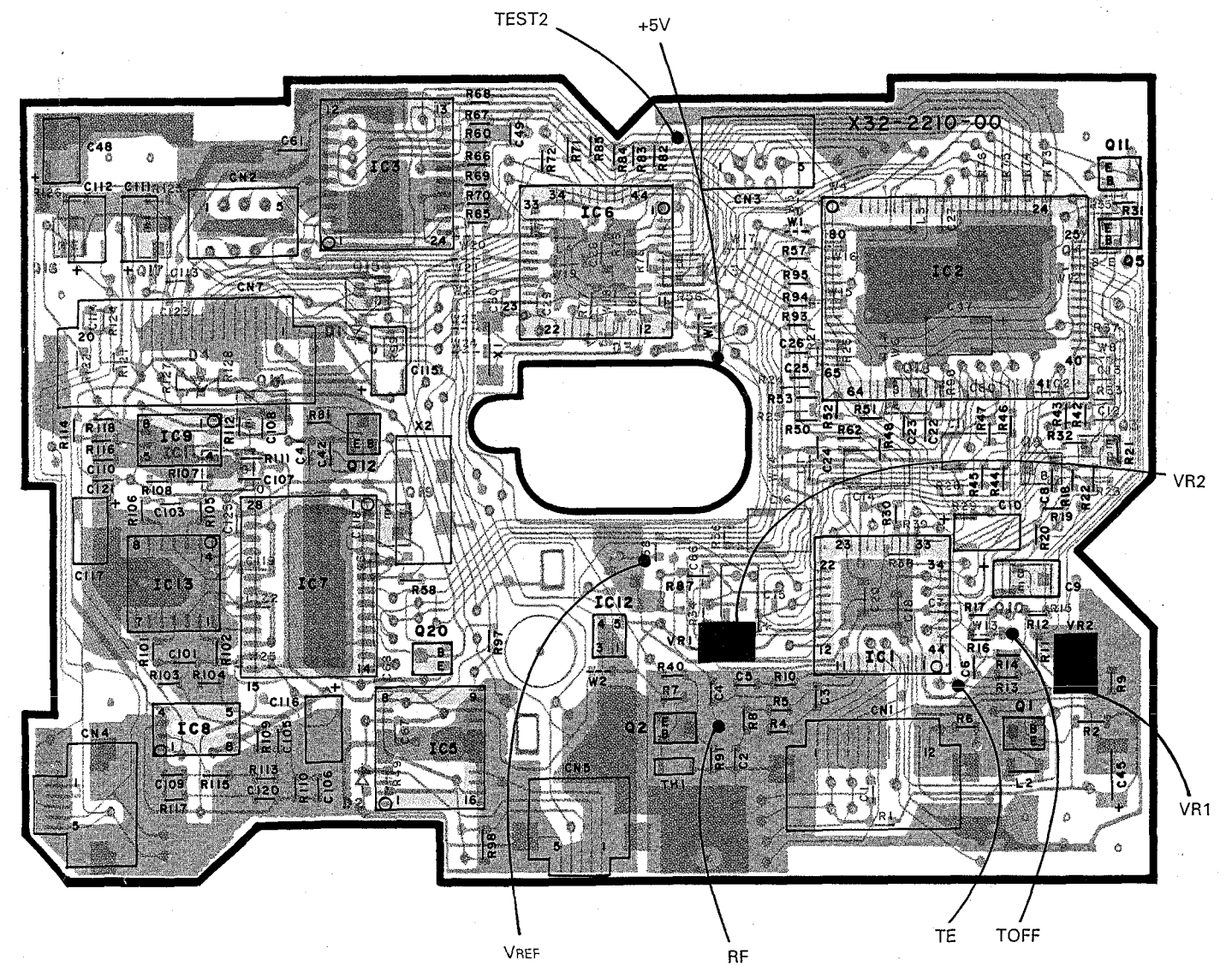
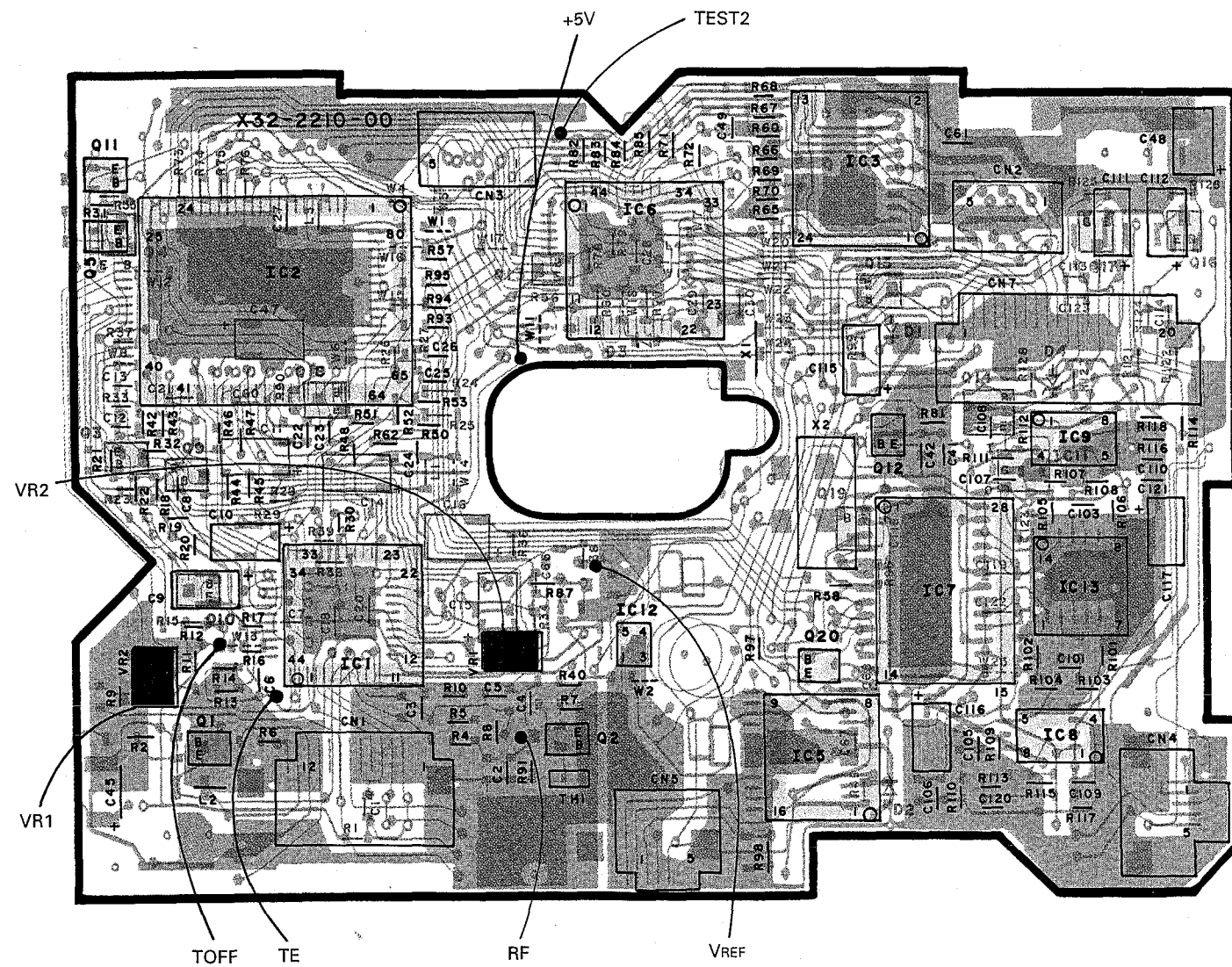
No.	ITEM	INPUT SETTINGS	OUTPUT SETTINGS	TUNER (RECEIVER) SETTING	ALIGNMENT POINTS	ALIGN FOR	FIG
FM SECTION							
1	DISCRIMINATOR	(A) 98.1MHz 0dev 60dBμ (ANT input)	Connect the DC voltmeter between pins of TP1 (X86)	FM 98.1Mhz	T1 (X86)	0V	(a)
2	SEPARATION	(C) 98.1MHz 1kHz, ±67.5kHz dev Pilot : ±7.5kHz deV Selector : L or R 60dBμ (ANT input)	(B)	FM 98.1MHz	VR2 (X86)	Adjust it so that the crosstalk from L to R and R to L become minimum.	
3	ANRC	(C) 98.1MHz 1kHz, ±67.5kHz dev Pilot : ±7.5kHz deV Selector : L or R 35dBμ (ANT input)	(B)	FM 98.1MHz	VR1 (X86)	Separation 10dB	
4	MUTE	(A) 98.1MHz 1kHz, ±75kHz dev 5dBμ (ANT input)	Connect the DC voltmeter to TP2 (X25)	FM 98.1MHz	VR3 (X25)	Low → Hight (Voltage) (MUTE → ON)	(b)
5	SEEK MUTE LEVEL	(A) 98.1kHz 1kHz, ±75kHz dev 20dBμ → No input	-	FM 98.1kHz SEEK : ON	VR3 (X25)	Seek stop	
6	SOFT MUTE LEVEL	(A) 98.1kHz 1kHz, ±75kHz dev 60dBμ → No input	(B)	FM 98.1Mhz	VR3 (X86)	Output Noise level -25dBμ (When not add any signal to ANT terminal)	
AM SECTION							
(1)	SEEK STOP LEVEL	(D) 1000kHz 400Hz, 30% mod 35dBμ (ANT input)	-	AM 1000kHz	VR1 (X25)	Seek stop	



# PC BOARD (MECHANISM)

Component side view

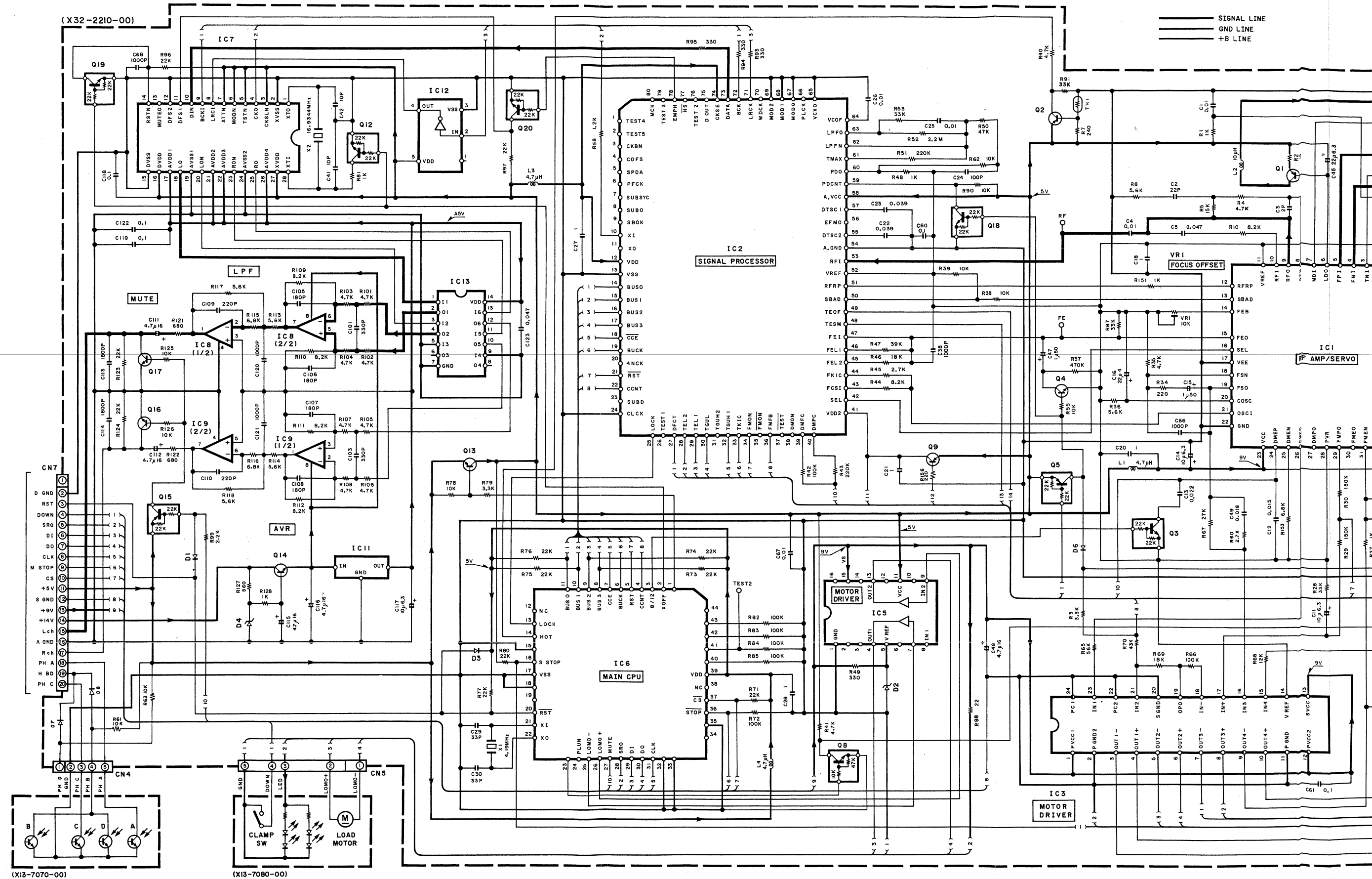
Foil side view



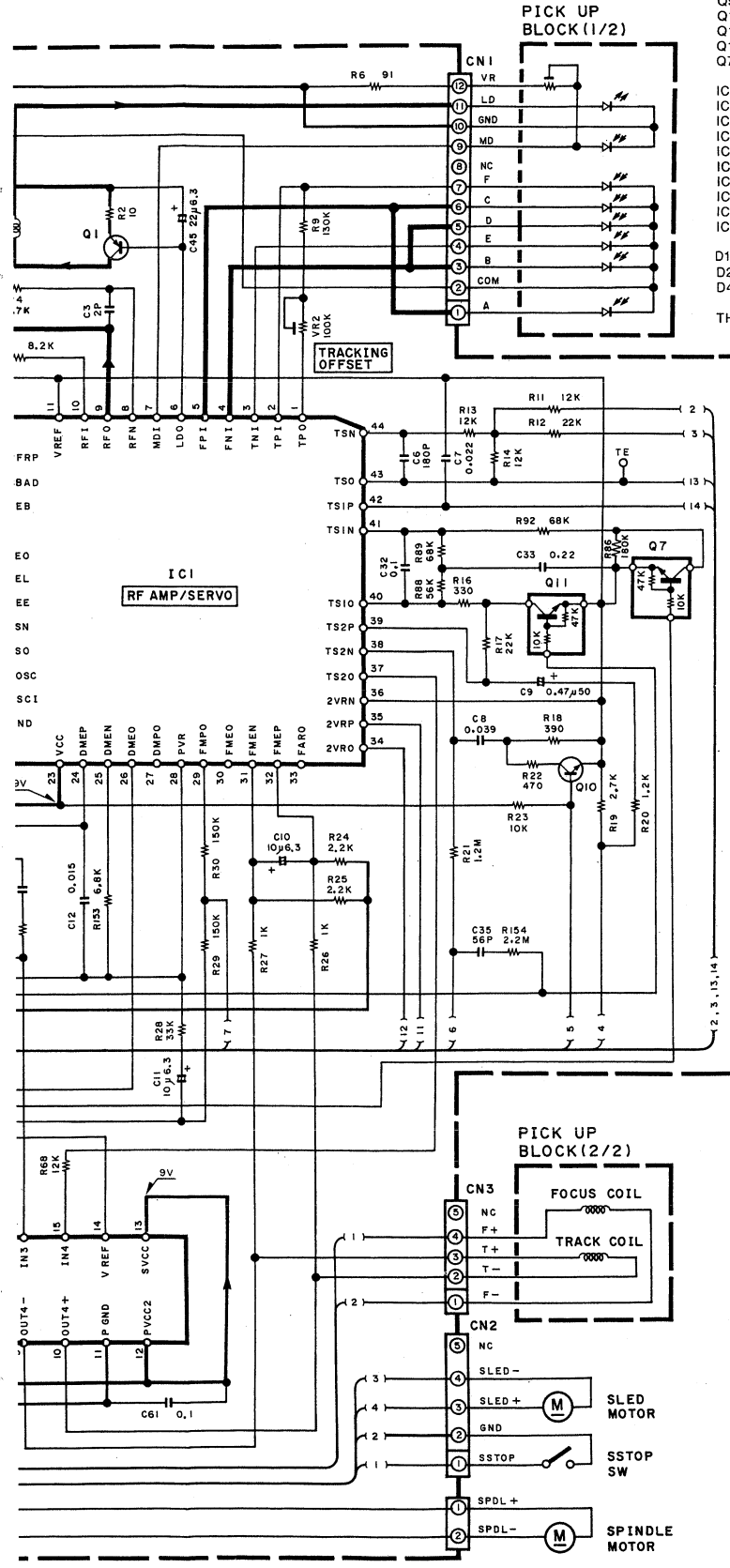
Refer to the schematic diagram for the values of resistors and capacitors.



# SCHEMATIC DIAGRAM (MECHANISM)

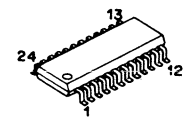


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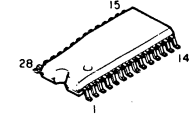


- Q1 : 2SB624 (BV3)  
Q2,9 : 2SA1037K  
Q3,12,18-20 : DTC124EK  
Q4,10 : 2SC2412K  
Q5,15 : DTA124EK  
Q13 : 2SA1036K  
Q14 : 2SD1624  
Q16,17 : 2SD1757K  
Q7,8,11 : DTC114YK
- IC1 : TA8191F  
IC2 : TC9236AF  
IC3 : AN8388SR  
IC5 : TA7291F  
IC6 : 75008GB-672-3B4  
IC7 : SM5870AS  
IC8,9 : NJM4580E  
IC11 : TA78L05F  
IC12 : TC7SU04F  
IC13 : TC74AC04F
- D1,3,6-8 : MA110  
D2 : MA8062  
D4 : MA8091
- TH1 : NT732BTD33K

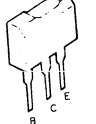
AN8388SR



SM5870AS

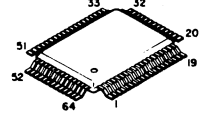


2SB1277

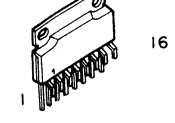


- DTA124EK 2SC2412K  
DTC114EK 2SD1757K  
DTC124EK 2SA1036K  
DTC144EK 2SC2413K  
2SA1037K

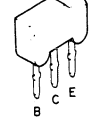
75112GF-732-3BE



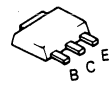
AN7174K



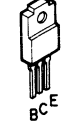
2SB1050



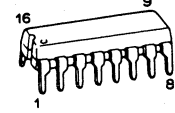
2SD1624



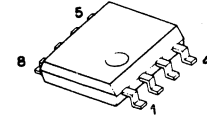
2SB1187F8  
2SD1266BD



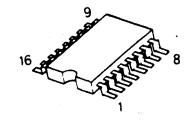
LM7001



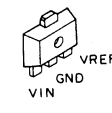
M5201FP  
NJM4565MD  
NJM4580E



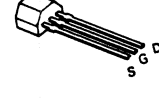
TA7291F



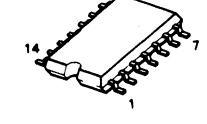
M5236ML  
TA78L05F



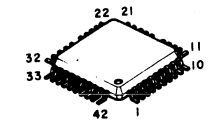
2SK669



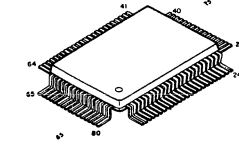
TC74AC04AF  
TC4066BF



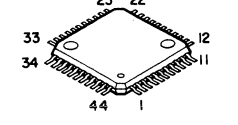
TC9188F



TC9236AF

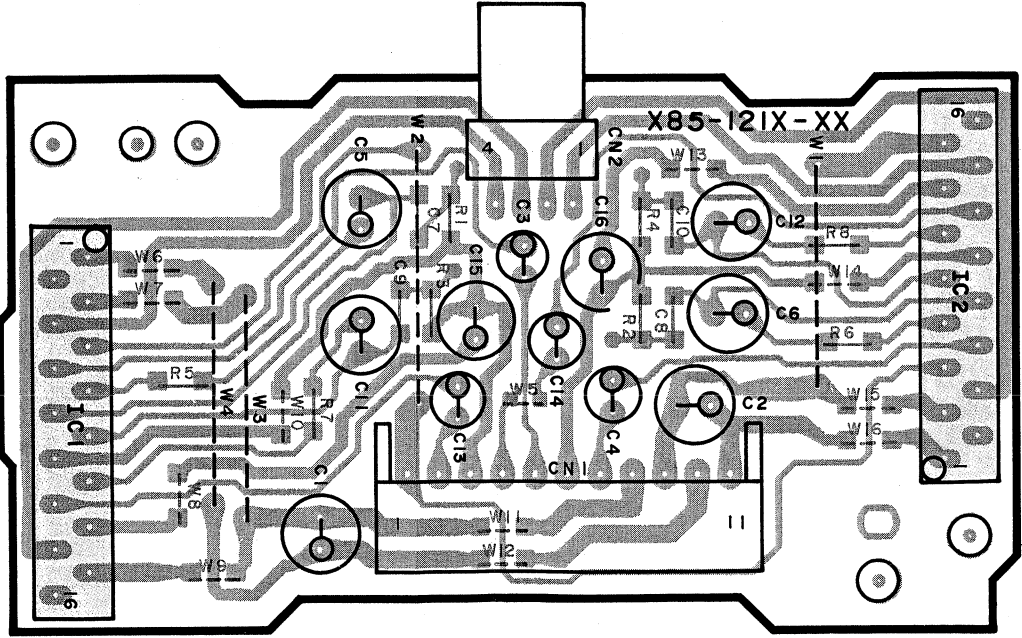
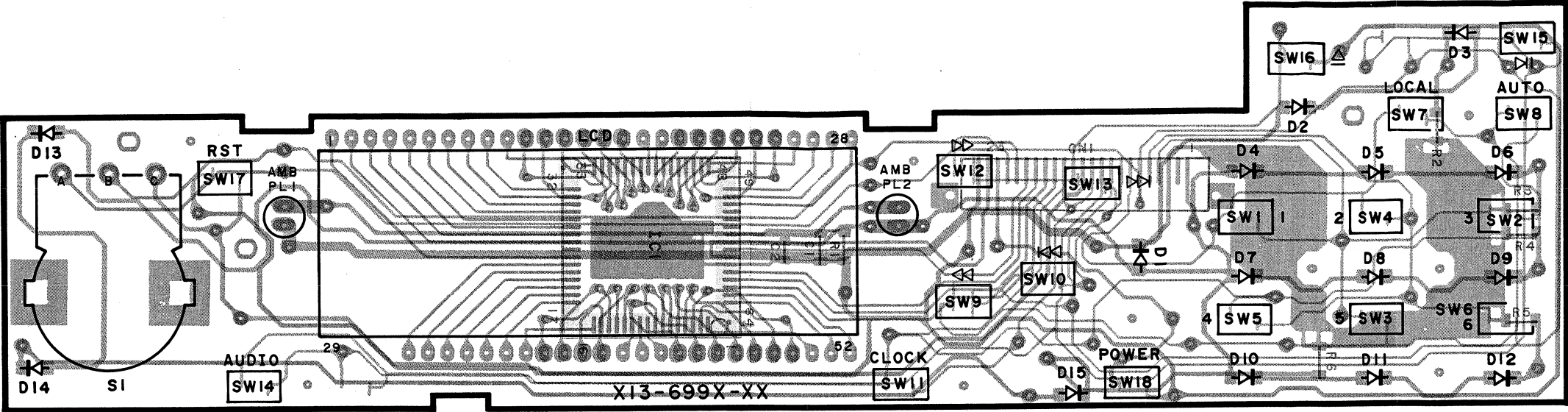


TA8191F  
75008GB-672-3B4



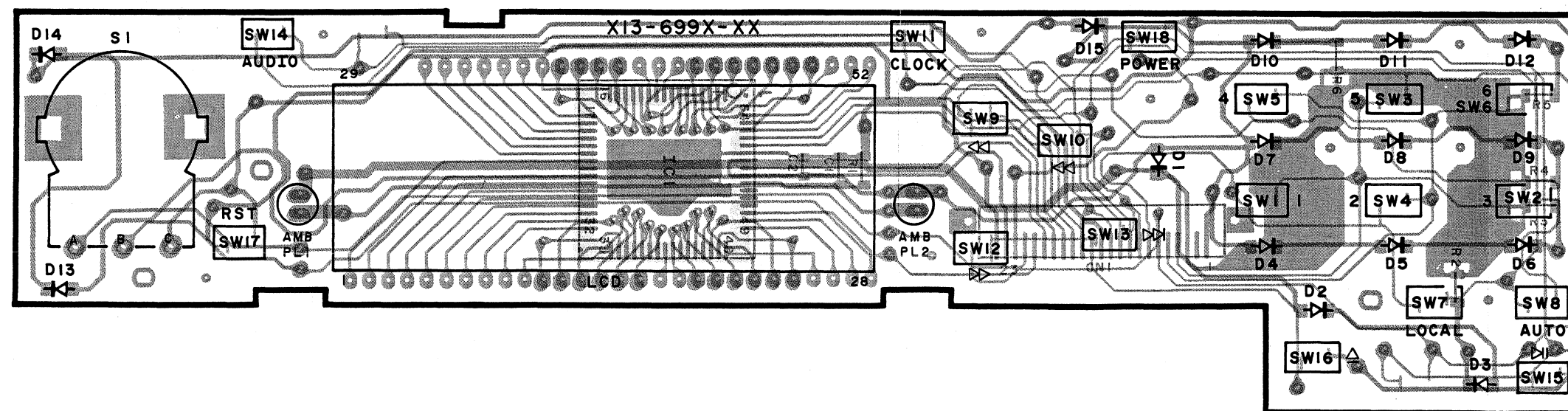
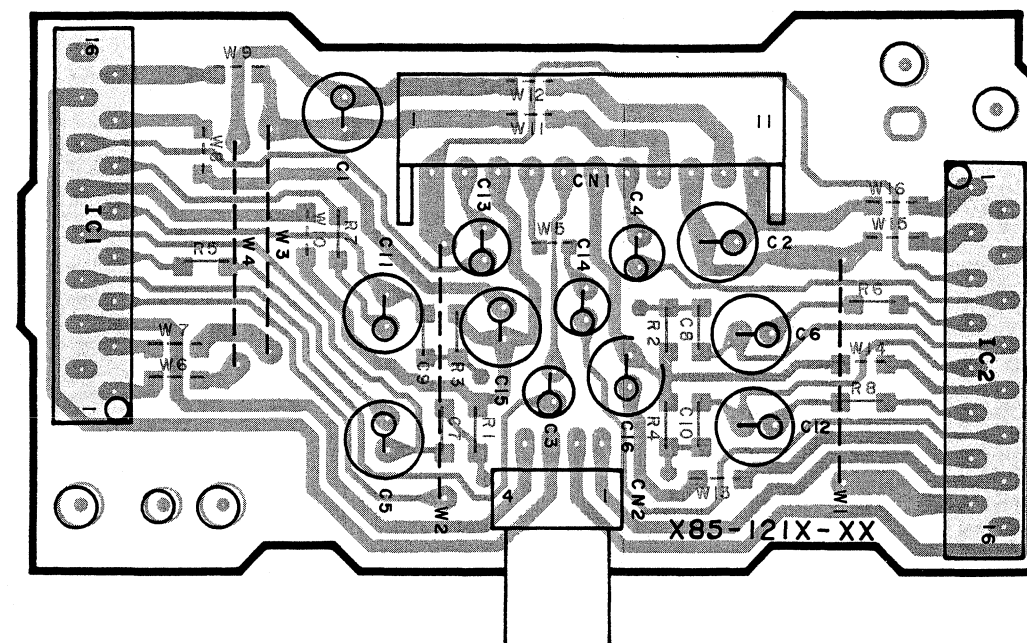
• DC voltages are as measured with a high impedance voltmeter. Values may vary slightly due to variations between individual instruments or/and units.

**CAUTION :** For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list).  $\Delta$  Indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.



Refer to the schematic diagram for the values of resistors and capacitors.

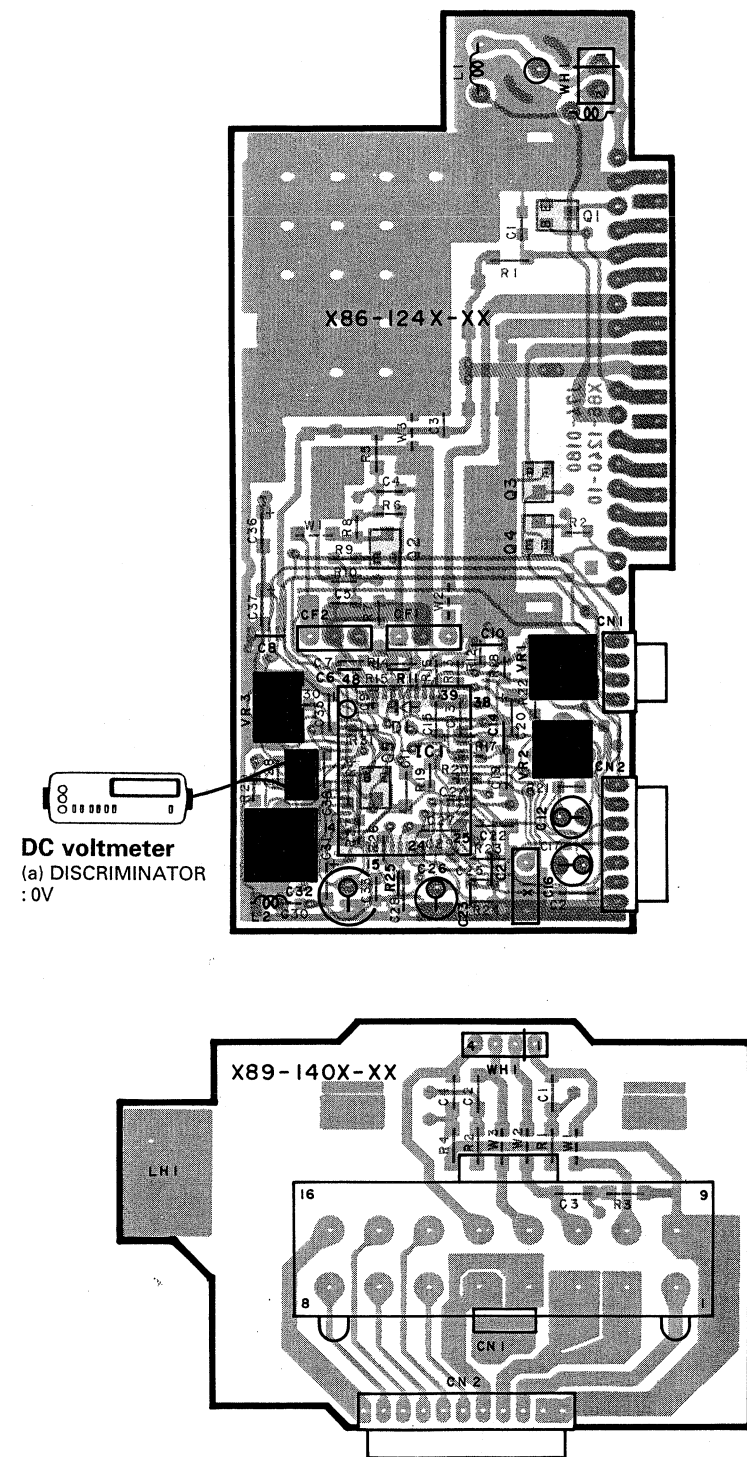
# PC BOARD (FOIL SIDE VIEW)



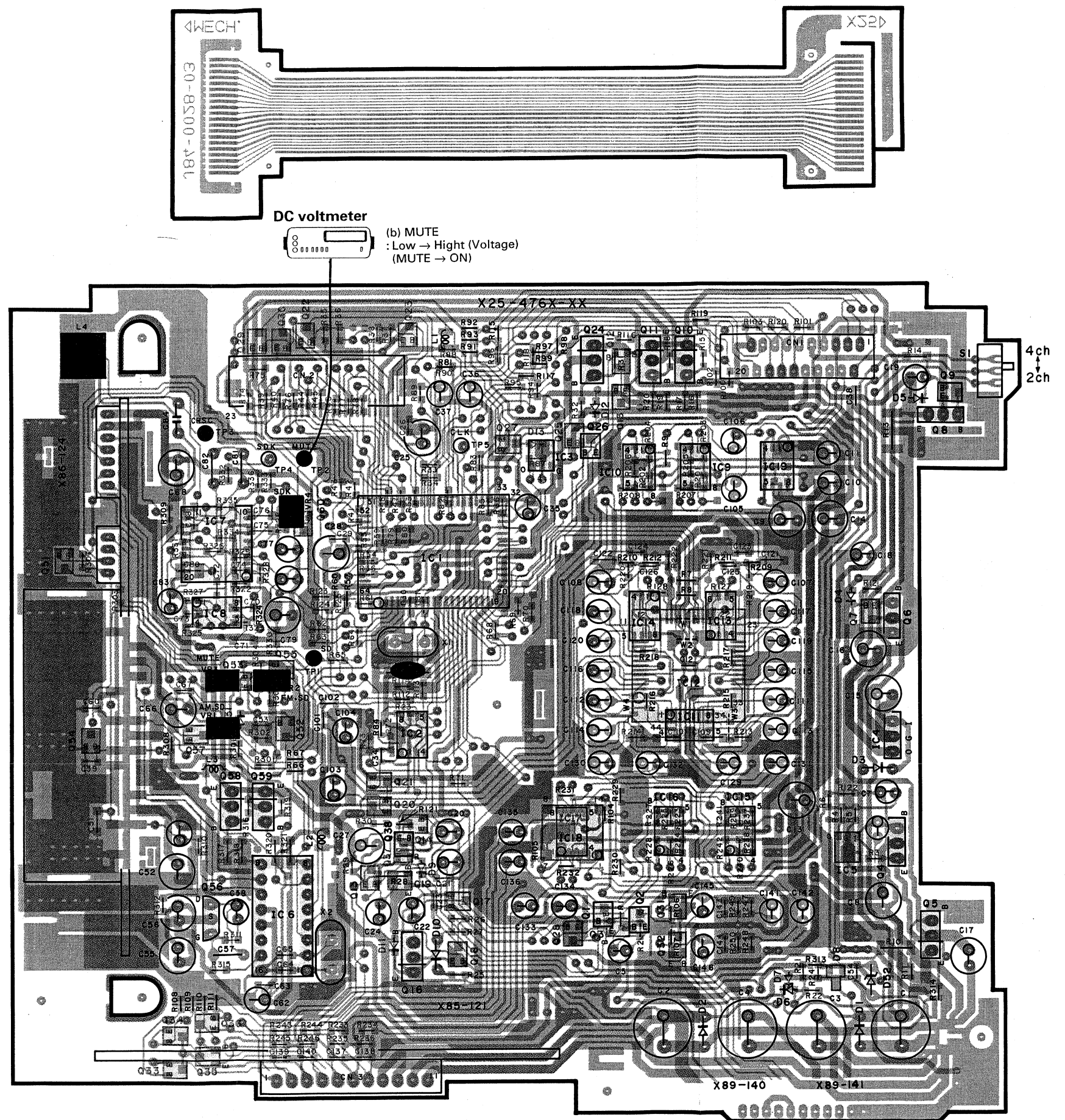
Refer to the schematic diagram for the values of resistors and capacitors.



# PC BOARD (COMPONENT SIDE VIEW)

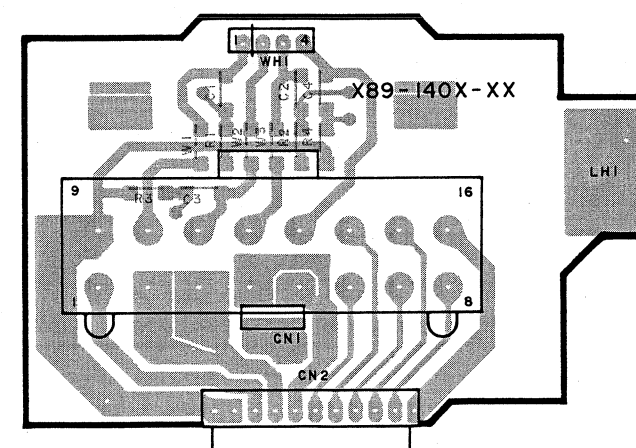
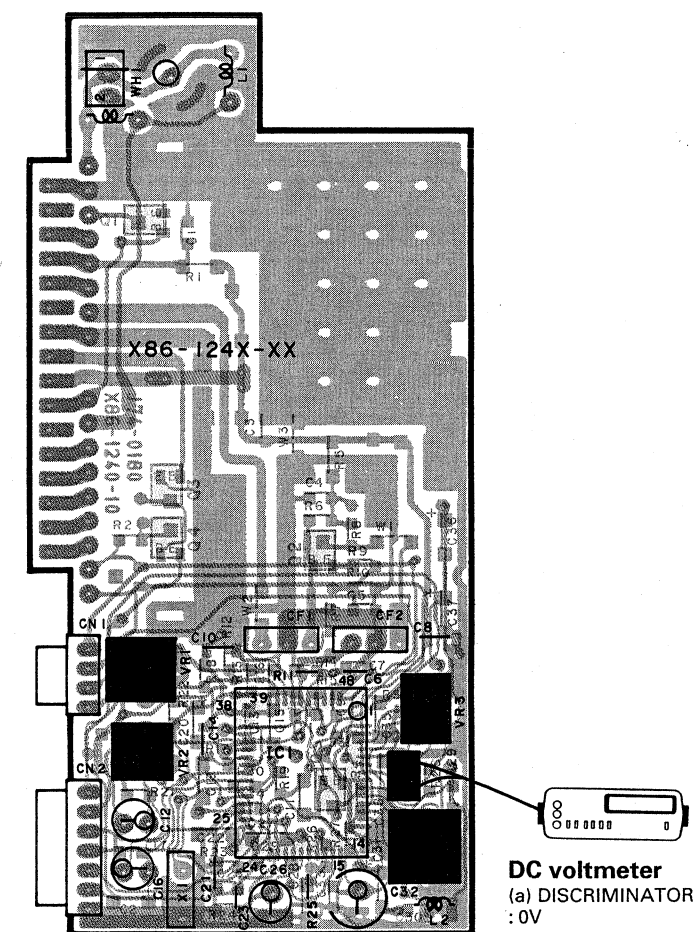
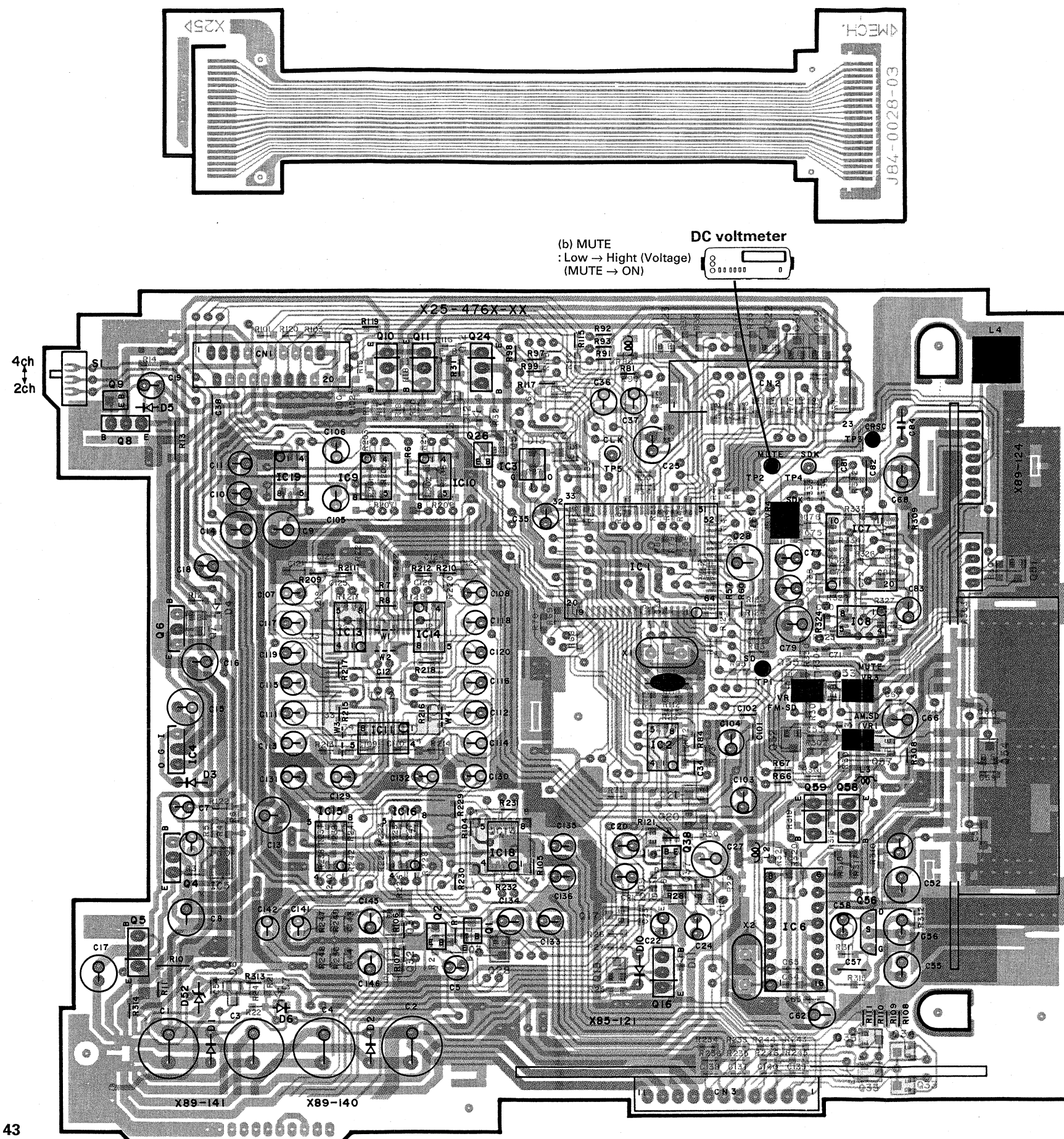


Refer to the schematic diagram for the values of resistors and capacitors.



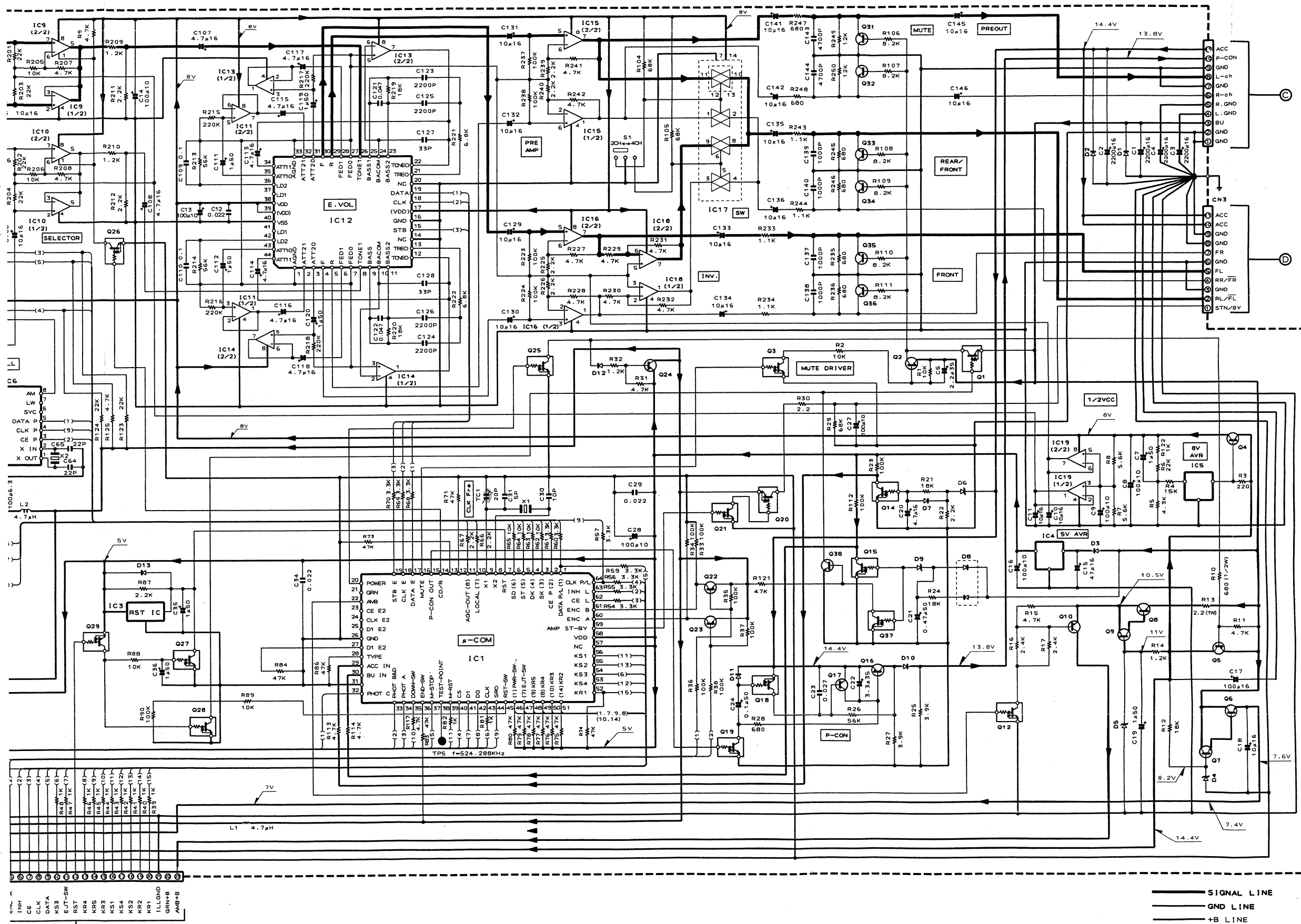


# PC BOARD (FOIL SIDE VIEW)



Refer to the schematic diagram for the values of resistors and capacitors.





• DC voltages are as measured with a high impedance voltmeter. Values may vary slightly due to variations between individual instruments or/and units.

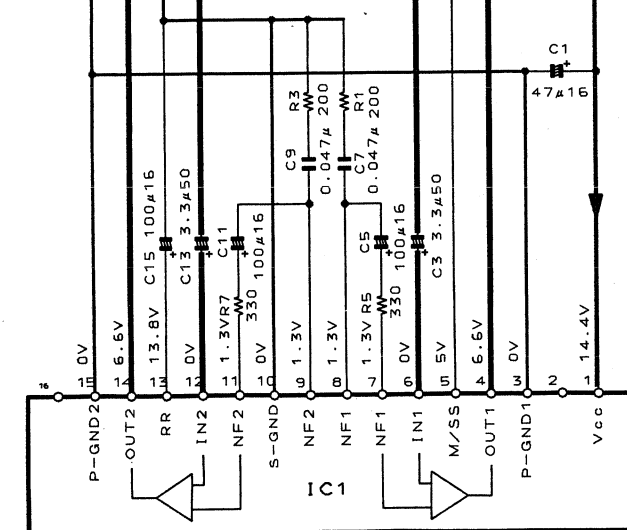
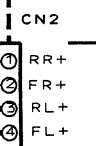
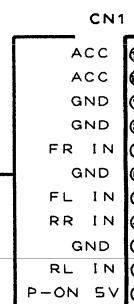
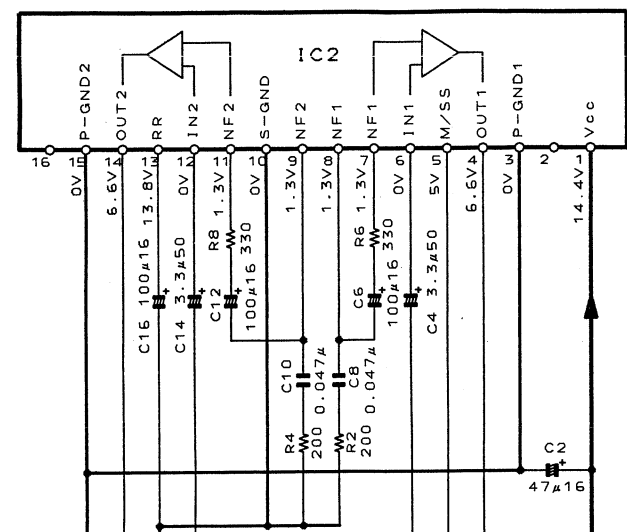
**CAUTION :** For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list).  $\Delta$  Indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

**KDC-67R/68R**  
**KENWOOD**



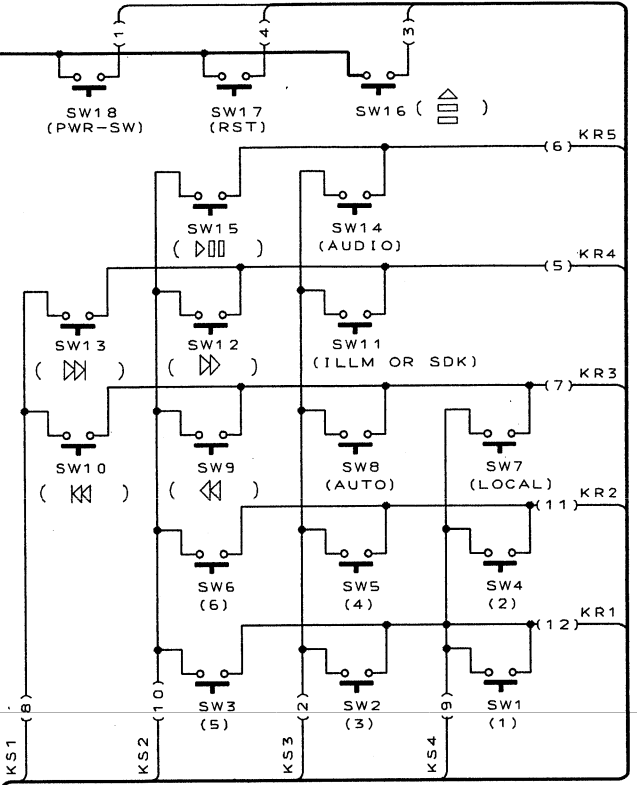
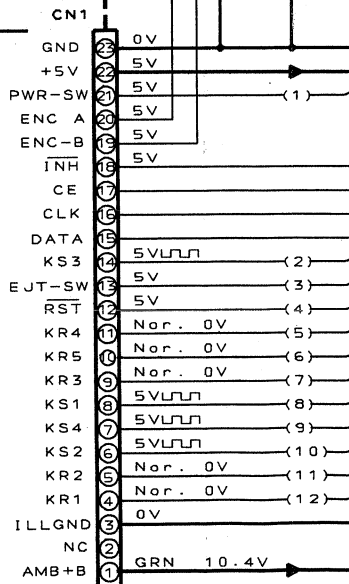
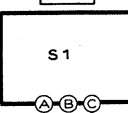
X85-1210-10 IC1.2 AN7174K

POWER AMP

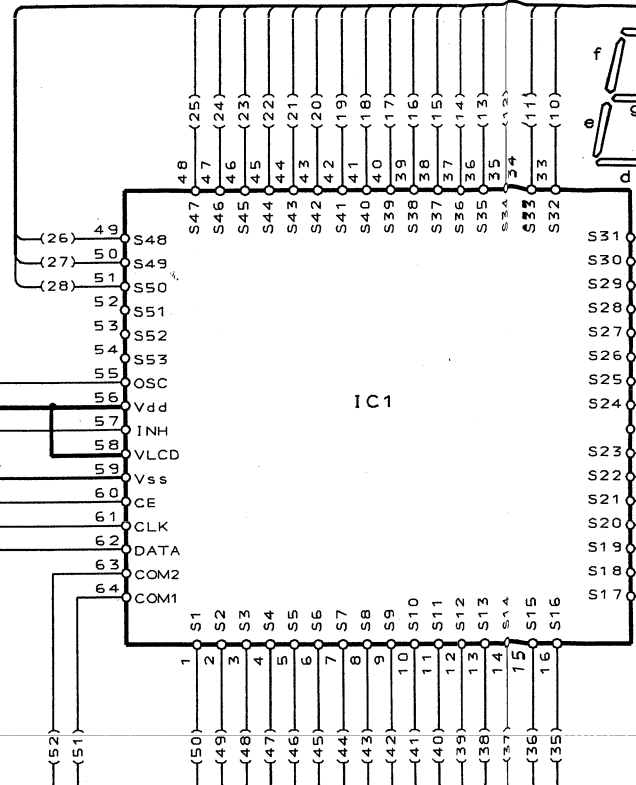


X13-6990-10

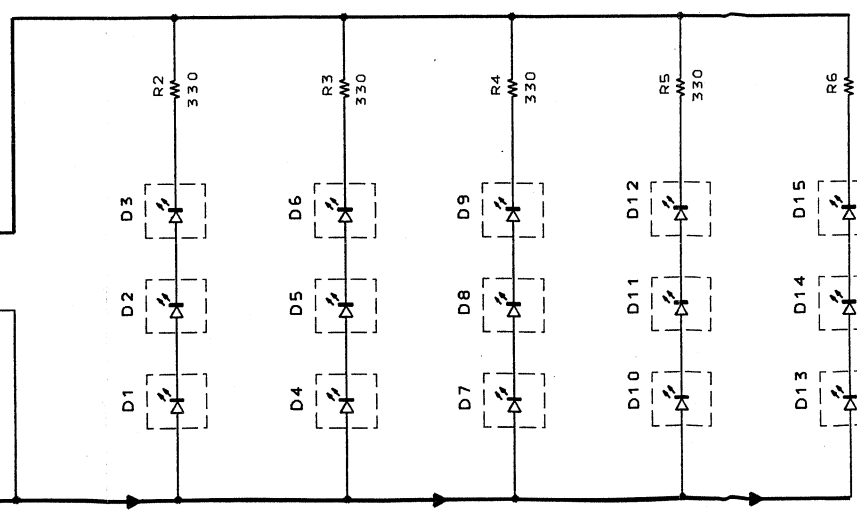
VOL

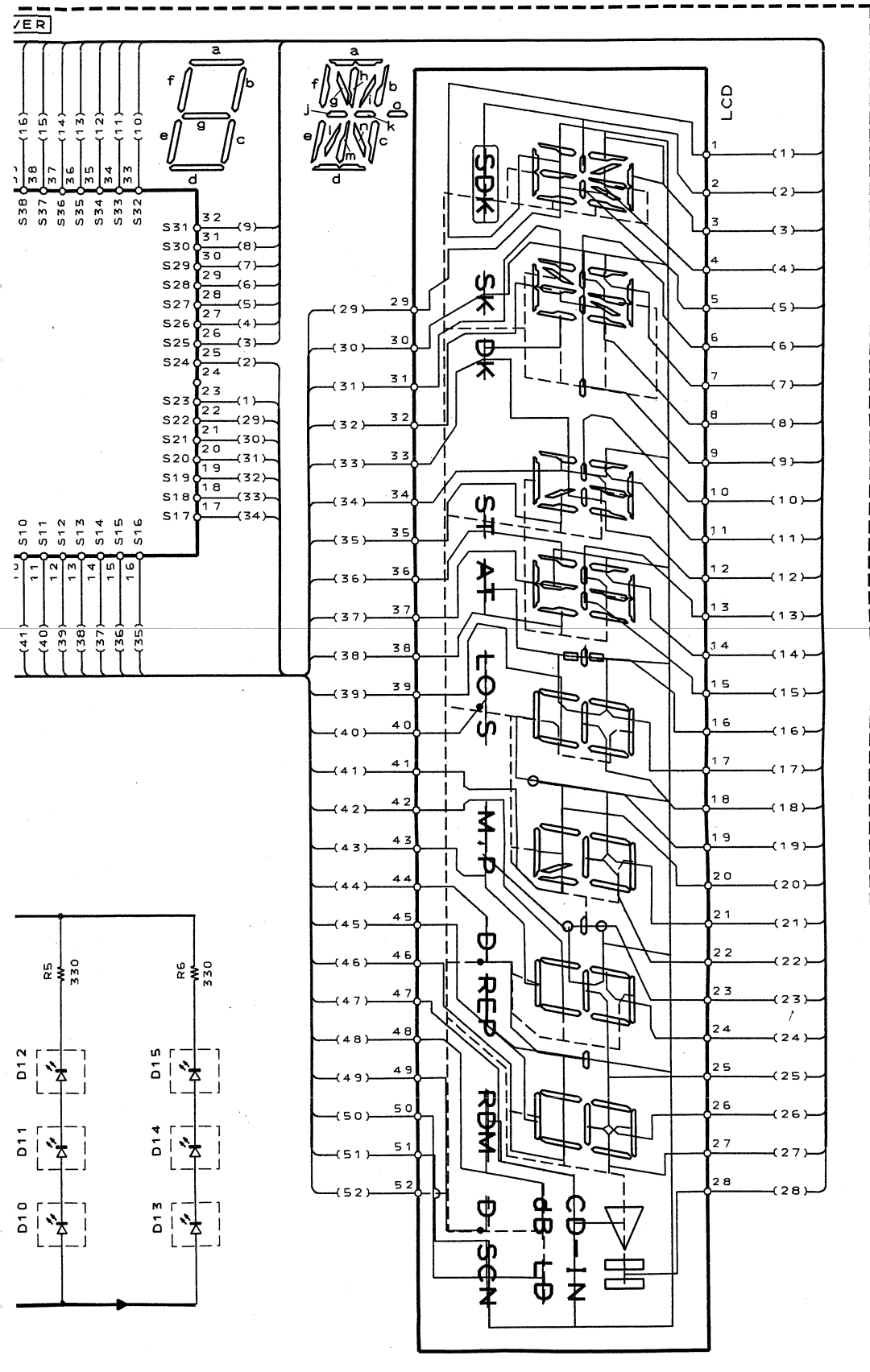


LCD DRIVER

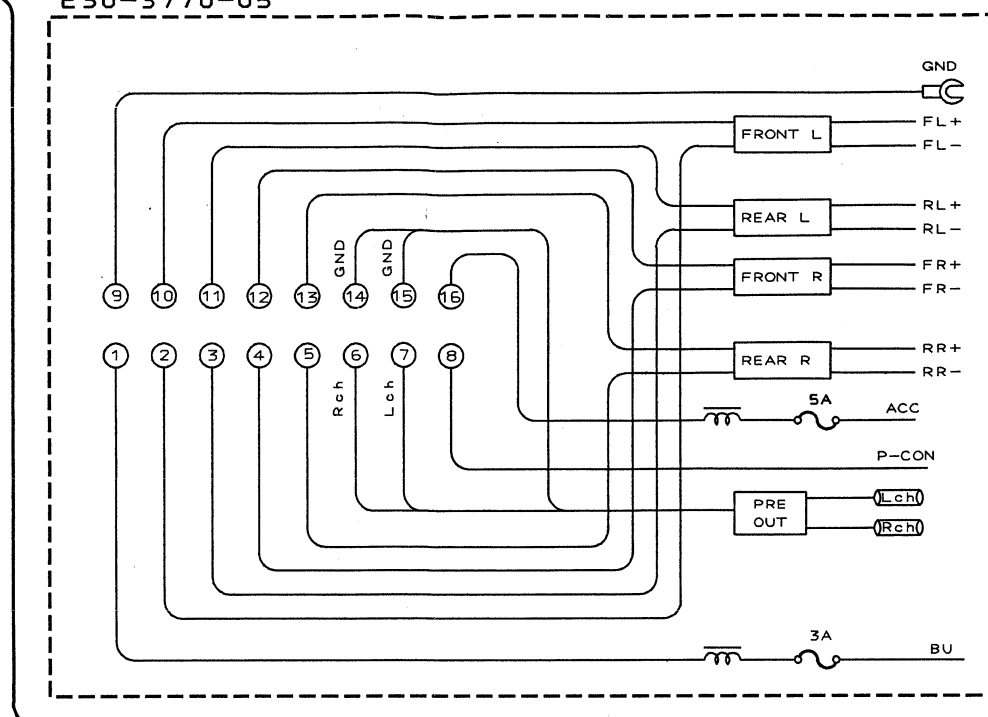


X13-6990-10  
IC1 : LC7582E  
D1~15 : B30-1371-05

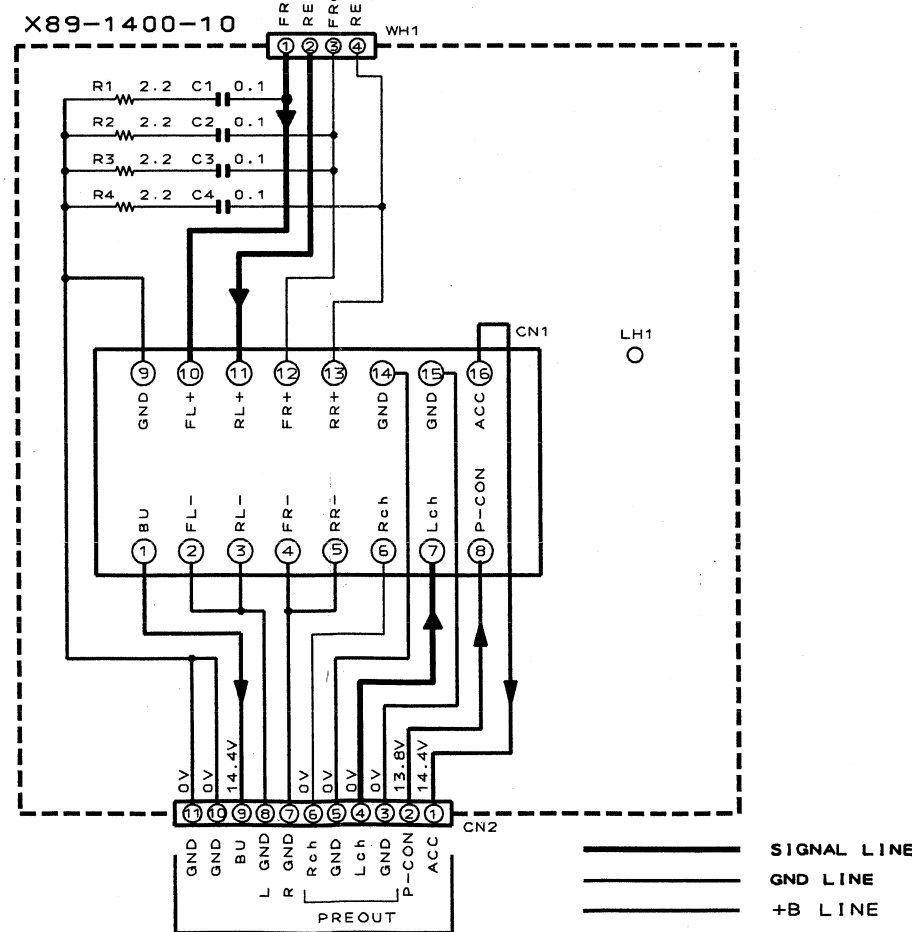




E30-3770-05



X89-1400-10



• DC voltages are as measured with a high impedance voltmeter. Values may vary slightly due to variations between individual instruments or/and units.

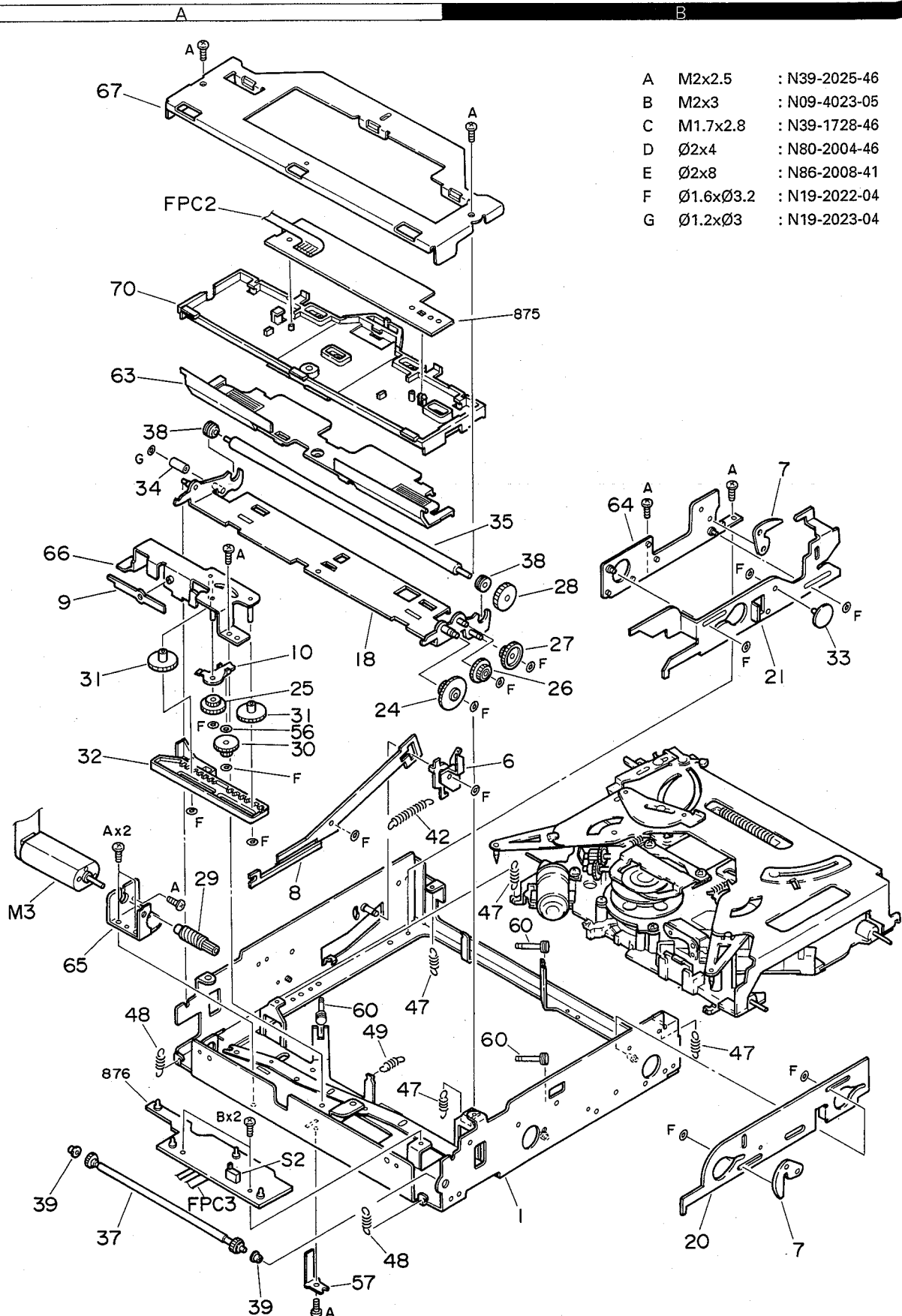
**CAUTION :** For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list).  $\Delta$  Indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

KDC-67R/68R (2/2)

**KDC-67R/68R**  
KENWOOD

# KDC-67R/68R

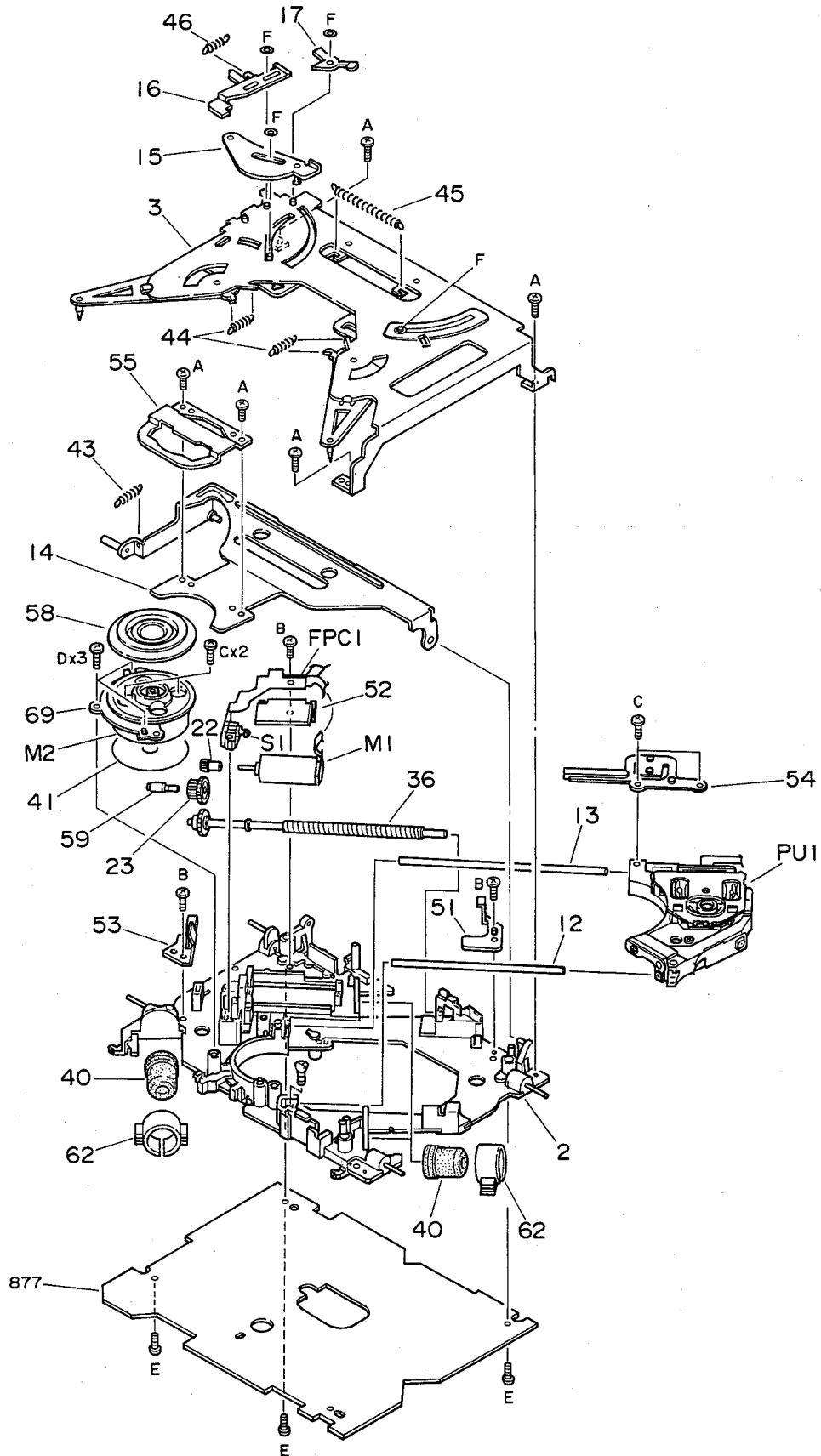
## EXPLODED VIEW (MECHANISM)



Parts with the exploded numbers larger than 700 are not supplied.

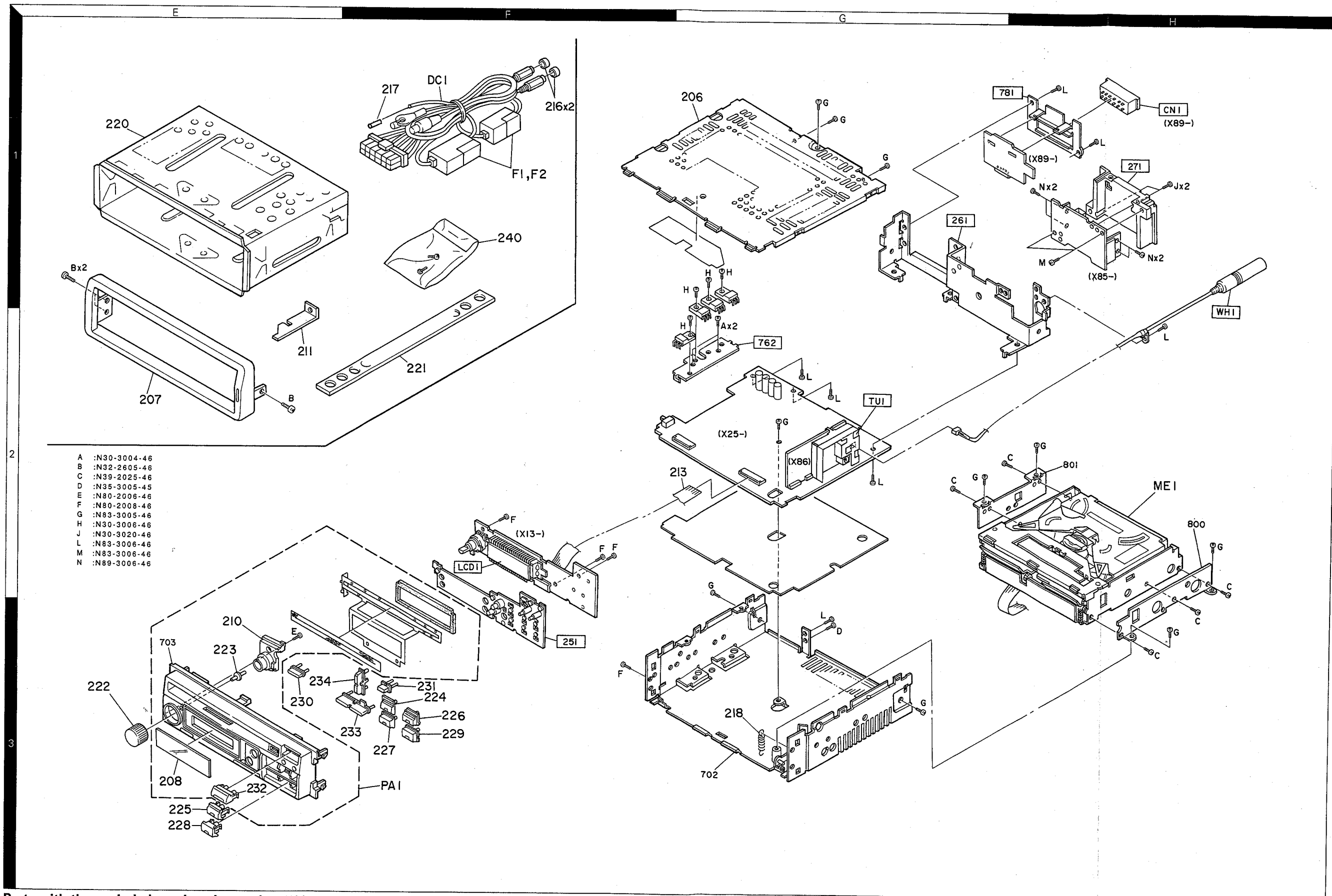
# KDC-67R/68R

## EXPLODED VIEW (MECHANISM)



# KDC-67R/68R KDC-67R/68R

## EXPLODED VIEW (UNIT)



## KDC-67R/68R

## PARTS LIST

\* New Parts

Parts without Parts No. are not supplied.

Les articles non mentionnés dans le Parts No. ne sont pas fournis.

Teile ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕向	Re- marks 備考
KDC-67R/68R						
206 PA1 PA1	1G 3F 3F	*	A52-0641-02 A20-7775-12 A20-7776-12	TOP PLATE PANEL ASSY (KDC-67R) PANEL ASSY (KDC-68R)	67R 68R	
207 208 208 210 -	2E 3E 3E 3E -	*	B07-2012-21 B10-1468-03 B10-1469-03 B19-0897-02 B46-0100-20	ESCUTCHEON FRONT GLASS (KDC-67R) FRONT GLASS (KDC-68R) LIGHTING BOARD WARRANTY CARD	67R 68R	
- - - -	- - - -	*	B46-0172-03 B58-1213-04 B64-0144-00 B64-0145-00	QUESTIONNAIRE CARD (KDC-67R) CAUTION CARD (KDC-67R) INSTRUCTION MANUAL (KDC-67R) INSTRUCTION MANUAL (KDC-68R)	67R 67R 67R 68R	
211	2F		D10-2548-14	LEVER		
213 DC1	2G 1F	*	E31-8279-05 E30-3770-05	WIRING HARNESS DC POWER CORD		
216 217 F1 F2	1F 1F 1F 1F	*	F29-0049-05 F29-0604-15 F06-5024-05 F06-3026-05	CAP (RCA CORD) INSULATING COVER (ANT. CONT.) FUSE (5A) ACC FUSE (3A) BU		
218 - - - - -	3G - - - - -		G01-2040-04	EXTENSION SPRING		
- - - - -	- - - - -	*	H01-9373-04 H01-9375-04 H03-3435-04 H03-3437-04 H10-4410-02	ITEM CARTON CASE (KDC-67R) ITEM CARTON CASE (KDC-68R) OUTER CARTON CASE (KDC-67R) OUTER CARTON CASE (KDC-68R) POLYSTYRENE FOAMED FIXTURE	67R 68R 67R 68R	
- -	- -		H25-0329-04 H25-0336-04	PROTECTION BAG (280X450X0.03) PROTECTION BAG (170X250X0.03)		
220 221	1E 2F	*	J21-7258-11 J54-0059-04	MOUNTING HARDWARE STAY		
222 223 224 225 226	3E 3E 3F 3E 3F	*	K23-1014-03 K24-0835-04 K24-0907-13 K24-0908-13 K24-0909-13	KNOB (VOL) KNOB (RESET) KNOB (1) KNOB (2) KNOB (3)		
227 228 229 230 231	3F 3E 3F 3F 3F	*	K24-0910-13 K24-0911-13 K24-0912-13 K24-1022-04 K24-1024-04	KNOB (4) KNOB (5) KNOB (6) KNOB (AUDIO) KNOB (EJECT)		
232 233 234	3E 3F 3F	*	K24-1025-04 K24-1034-04 K25-0591-03	KNOB (PLAY/PAUSE) KNOB (CLOCK/TUN) KNOB (FM/AM)		
240 A B C D	1F 2G 1E, 2E 2H, 3H 3G		N99-1571-05 N30-3004-46 N32-2605-46 N39-2025-46 N35-3005-45	SCREW SET PAN HEAD MACHIN SCREW FLAT HEAD MACHIN SCREW BINDING HEAD MACHIN SCREW BINDING HEAD MACHIN SCREW		
E F	3F 2F, 2G		N80-2006-46 N80-2008-46	PAN HEAD TAPTITE SCREW PAN HEAD TAPTITE SCREW		

67R : KDC-67R

68R : KDC-68R

△ indicates safety critical components.

## KDC-67R/68R

## PARTS LIST

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Ref. No. 参照番号	Address 位置	New Parts	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕向	Re- marks 備考
G	2H, 3H		N83-3005-46	PAN HEAD TAPTITE SCREW		
ME1	2H	*	X92-1660-00	MECHANISM ASSY		
SWITCH UNIT : X13-6990-10						
D1 -15 LCD1 PL1 ,2	2F	*	B30-1371-05 B38-0557-05 B30-1305-05	LED LIQUID CRYSTAL LAMP (5.5V .125A)		
C1 C2			CK73EB1H681K CK73FB1H223KTA	CHIP C 680PF K CHIP C 0.022UF K		
251	3F	*	E29-1362-02	CONDUCTIVE RUBBER		
R1 R2 -6			RK73EB2B513J RK73EB2B331J	CHIP R 51K J 1/8W CHIP R 330 J 1/8W		
S1			T99-0403-05	SPBED DETECTOR		
IC1		*	LC7582E	IC		
SUB CIRCUIT UNIT IN MECHANISM : X13-7070-00						
-		*	PT-461I1	PHOTO TRANSISTOR		
SUB CIRCUIT UNIT IN MECHANISM : X13-7080-00						
-		*	B30-1365-05	LED		
S2	3A		S40-1140-05	PUSH SWITCH		
ELECTRIC UNIT : X25-4760-10						
261	1H	*	A23-5048-03	REAR PANEL		
C1 -4 C5 C7 C8 ,9 C10 ,11		*	C90-2537-05 C90-2600-05 C90-2608-05 CE04CW1A101M C90-2597-05	ELECTRO 2200UF 16WV ELECTRO 2.2UF 35WV ELECTRO 1.0UF 50WV ELECTRO 100UF 10WV ELECTRO 10UF 16WV		
C12 C13 ,14 C15 C16 C17			CK73FB1H223KTA CE04CW1A101M CE04CW1C470M CE04CW1A101M CE04NW1C101M	CHIP C 0.022UF K ELECTRO 100UF 10WV ELECTRO 47UF 16WV ELECTRO 100UF 10WV ELECTRO 100UF 16WV		
C18 C19 C20 C21 C22		*	C90-2597-05 CE04NW1H010M C90-2595-05 C90-2606-05 C90-2601-05	ELECTRO 10UF 16WV ELECTOR 1.0UF 50WV ELECTRO 4.7UF 16WV ELECTRO 0.47UF 50WV ELECTRO 3.3UF 35WV		
C23 C24 C25 C26 C27 ,28		*	CK73FB1E273KTA C90-2602-05 CE04CW1A101M CK73FB1H223KTA CE04CW1A101M	CHIP C 0.027UF K ELECTRO 0.1UF 50WV ELECTRO 100UF 10WV CHIP C 0.022UF K ELECTRO 100UF 10WV		
C29 C30 C31 C34 C35			CK73FB1H223KTA CC73FCH1H100D CC73FCH1H050C CK73FB1H223KTA CC73FCH1H560J	CHIP C 0.022UF K CHIP C 10PF D CHIP C 5PF C CHIP C 0.022UF K CHIP C 56PF J		
C36 C38 C51			CE04NW1H010M CK73EB1E104K CK73EB1H683K	ELECTOR 1.0UF 50WV CHIP C 0.10UF K CHIP C 0.068UF		

△ indicates safety critical components.

## PARTS LIST

\* New Parts

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Telle ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕 向	Re- marks 備考
C52			CE04NW1A101M	ELECTRØ 100UF 10WV		
C53 ,54			CK73FB1H223KTA	CHIP C 0.022UF K		
C55 ,56			CE04NW1A101M	ELECTRØ 100UF 10WV		
C57		*	C91-2040-05	CERAMIC 0.010UF Z		
C58			C90-2600-05	ELECTRØ 2.2UF 35WV		
C59 ,60			CK73FB1H103K	CHIP C 0.010UF K		
C62			CE04NWOJ101M	ELECTRØ 100UF 6.3WV		
C63			CK73FB1H223KTA	CHIP C 0.022UF K		
C64 ,65			CC73FCH1H220J	CHIP C 22PF J		
C66			CE04NW1A101M	ELECTRØ 100UF 10WV		
C67			CK73FB1H223KTA	CHIP C 0.022UF K		
C68			CE04NW1A101M	ELECTRØ 100UF 10WV		
C101,102			CK73FB1E273KTA	CHIP C 0.027UF K		
C103-106		*	C90-2597-05	ELECTRØ 10UF 16WV		
C107,108		*	C90-2595-05	ELECTRØ 4.7UF 16WV		
C109,110			CK73EB1E104K	CHIP C 0.10UF K		
C111,112			C90-2608-05	ELECTRØ 1.0UF 50WV		
C113-118		*	C90-2595-05	ELECTRØ 4.7UF 16WV		
C119,120			C90-2608-05	ELECTRØ 1.0UF 50WV		
C121,122			CK73EB1H473K	CHIP C 0.047UF K		
C123-126			CK73FB1H222K	CHIP C 2200PF K		
C127,128			CC73FSL1H330J	CHIP C 33PF J		
C129-136		*	C90-2597-05	ELECTRØ 10UF 16WV		
C137-140			CK73FB1H102K	CHIP C 1000PF K		
C141,142		*	C90-2597-05	ELECTRØ 10UF 16WV		
C143,144			C93-1036-05	CERAMIC 4700PF K		
C145,146		*	C90-2597-05	ELECTRØ 10UF 16WV		
TC1		*	C05-0510-05	CERAMIC TRIMMER CAPACITOR(20PF)		
L1 -3			L40-4791-31	SMALL FIXED INDUCTOR(4.7UH)		
X1			L77-1167-05	CRYSTAL RESONATOR		
X2			L77-1166-05	CRYSTAL RESONATOR		
H	1G,2G		N30-3006-46	PAN HEAD MACHIN SCREW		
J	1H	*	N30-3020-46	PAN HEAD MACHIN SCREW		
L	1H,2G		N83-3006-46	BINDING HEAD TAPTITE SCREW		
R1 ,2			RK73FB2A103J	CHIP R 10K J 1/10W		
R3			RK73FB2A221J	CHIP R 220 J 1/10W		
R4			RK73FB2A153J	CHIP R 15K J 1/10W		
R5			RK73FB2A432J	CHIP R 4.3K J 1/10W		
R6			RK73FB2A223J	CHIP R 22K J 1/10W		
R7 ,8			RK73EB2B562J	CHIP R 5.6K J 1/8W		
R9			RK73FB2A472J	CHIP R 4.7K J 1/10W		
R10			R92-2063-05	CHIP R 680 J 1/2W		
R11			RK73FB2A472J	CHIP R 4.7K J 1/10W		
R12			RK73FB2A183J	CHIP R 18K J 1/10W		
R13			R92-2104-05	CHIP R 2.2 J 1W		
R14			RK73EB2B122J	CHIP R 1.2K J 1/8W		
R15			RK73FB2A472J	CHIP R 4.7K J 1/10W		
R16 ,17			RK73FB2A242J	CHIP R 2.4K J 1/10W		
R21			RK73FB2A183J	CHIP R 18K J 1/10W		
R22			RK73FB2A222J	CHIP R 2.2K J 1/10W		
R23			RK73FB2A104J	CHIP R 100K J 1/10W		
R24			RK73FB2A183J	CHIP R 18K J 1/10W		
R25			RK73FB2A392J	CHIP R 3.9K J 1/10W		
R26			RK73FB2A563J	CHIP R 56K J 1/10W		

# KDC-67R/68R

## PARTS LIST

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Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕向	Re- marks 備考
R27			RK73FB2A392J	CHIP R 3.9K J 1/10W		
R28			R92-2063-05	CHIP R 680 J 1/2W		
R29			RK73FB2A683J	CHIP R 68K J 1/10W		
R30			RK73FB2A2R2J	CHIP R 2.2 J 1/10W		
R31			RK73FB2A472J	CHIP R 4.7K J 1/10W		
R32			RK73FB2A122J	CHIP R 1.2K J 1/10W		
R33 -38			RK73FB2A104J	CHIP R 100K J 1/10W		
R39 -48			RK73FB2A102J	CHIP R 1.0K J 1/10W		
R53			RK73FB2A102J	CHIP R 1.0K J 1/10W		
R54 -57			RK73FB2A332J	CHIP R 3.3K J 1/10W		
R59 -61			RK73FB2A332J	CHIP R 3.3K J 1/10W		
R62 -65			RK73FB2A103J	CHIP R 10K J 1/10W		
R66 ,67			RK73FB2A222J	CHIP R 2.2K J 1/10W		
R68 -70			RK73FB2A332J	CHIP R 3.3K J 1/10W		
R71			RK73FB2A473J	CHIP R 47K J 1/10W		
R73 -80			RK73FB2A473J	CHIP R 47K J 1/10W		
R81 ,82			RK73FB2A102J	CHIP R 1.0K J 1/10W		
R83			RK73FB2A473J	CHIP R 47K J 1/10W		
R84			RK73FB2A473J	CHIP R 47K J 1/10W		
R86			RK73FB2A473J	CHIP R 47K J 1/10W		
R87			RK73FB2A222J	CHIP R 2.2K J 1/10W		
R88 ,89			RK73FB2A103J	CHIP R 10K J 1/10W		
R90			RK73FB2A104J	CHIP R 100K J 1/10W		
R91			RK73FB2A223J	CHIP R 22K J 1/10W		
R92			RK73FB2A104J	CHIP R 100K J 1/10W		
R93			RK73FB2A223J	CHIP R 22K J 1/10W		
R94 -96			RK73FB2A472J	CHIP R 4.7K J 1/10W		
R97 ,98			RK73FB2A473J	CHIP R 47K J 1/10W		
R99			RK73FB2A222J	CHIP R 2.2K J 1/10W		
R100-103			RK73FB2A104J	CHIP R 100K J 1/10W		
R104,105			RK73FB2A683J	CHIP R 68K J 1/10W		
R106-111			RK73FB2A822J	CHIP R 8.2K J 1/10W		
R112			RK73FB2A104J	CHIP R 100K J 1/10W		
R113-119			RK73FB2A203J	CHIP R 20K J 1/10W		
R113,114			RK73FB2A472J	CHIP R 4.7K J 1/10W		
R117			RK73FB2A472J	CHIP R 4.7K J 1/10W		
R120			RK73FB2A102J	CHIP R 1.0K J 1/10W		
R121			RK73FB2A473J	CHIP R 47K J 1/10W		
R122			RK73FB2A102J	CHIP R 1.0K J 1/10W		
R123,124			RK73FB2A223J	CHIP R 22K J 1/10W		
R125			RK73FB2A472J	CHIP R 4.7K J 1/10W		
R201-204			RK73FB2A223J	CHIP R 22K J 1/10W		
R205,206			RK73FB2A103J	CHIP R 10K J 1/10W		
R207,208			RK73FB2A472J	CHIP R 4.7K J 1/10W		
R209,210			RK73FB2A122J	CHIP R 1.2K J 1/10W		
R211,212			RK73FB2A222J	CHIP R 2.2K J 1/10W		
R213,214			RK73FB2A563J	CHIP R 56K J 1/10W		
R215-218			RK73FB2A224J	CHIP R 220K J 1/10W		
R219,220			RK73FB2A183J	CHIP R 18K J 1/10W		
R221,222			RK73FB2A682J	CHIP R 6.8K J 1/10W		
R223,224			RK73FB2A104J	CHIP R 100K J 1/10W		
R225,226			RK73FB2A222J	CHIP R 2.2K J 1/10W		
R227-232			RK73FB2A472J	CHIP R 4.7K J 1/10W		
R233,234			RK73FB2A112J	CHIP R 1.1K J 1/10W		
R235,236			RK73FB2A681J	CHIP R 680 J 1/10W		



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R237,238			RK73FB2A104J	CHIP R 100K J 1/10W		
R239,240			RK73FB2A222J	CHIP R 2.2K J 1/10W		
R241,242			RK73FB2A472J	CHIP R 4.7K J 1/10W		
R243,244			RK73FB2A112J	CHIP R 1.1K J 1/10W		
R245-248			RK73FB2A681J	CHIP R 680 J 1/10W		
R249,250			RK73FB2A123J	CHIP R 12K J 1/10W		
R301,302			RK73FB2A103J	CHIP R 10K J 1/10W		
R303			RK73FB2A563J	CHIP R 56K J 1/10W		
R304-306			RK73FB2A223J	CHIP R 22K J 1/10W		
R307			RK73FB2A472J	CHIP R 4.7K J 1/10W		
R308,309			RK73FB2A100J	CHIP R 10 J 1/10W		
R310			RK73FB2A331J	CHIP R 330 J 1/10W		
R311			RK73FB2A272J	CHIP R 2.7K J 1/10W		
R312			RK73FB2A332J	CHIP R 3.3K J 1/10W		
R313			RK73FB2A102J	CHIP R 1.0K J 1/10W		
R314			RK73FB2A681J	CHIP R 680 J 1/10W		
R315			RK73FB2A222J	CHIP R 2.2K J 1/10W		
R316			RK73FB2A223J	CHIP R 22K J 1/10W		
R317,318			RK73EB2B511J	CHIP R 510 J 1/8W		
R319			RK73FB2A223J	CHIP R 22K J 1/10W		
R320,321			RK73EB2B511J	CHIP R 510 J 1/8W		
VR1,2			R12-6423-05	TRIM POT. 10K		
VR3			R12-6425-05	TRIM POT. 22K		
W1 -4			R92-2053-05	CHIP R 0 J 1/8W		
S1			S62-0803-05	SLIDE SWITCH		
D1 -3			ERA15-01Y1	DIODE		
D4			MA8082-M	ZENER DIODE		
D5			MA8110	ZENER DIODE		
D6			MA8075-M	ZENER DIODE		
D7			MA110	DIODE		
D8			DA204K	DIODE		
D9			MA8062-M	ZENER DIODE		
D10			ERA15-01Y1	DIODE		
D11 -13			MA110	DIODE		
D51			MA110	DIODE		
D52			RD9.1JS(B2)	ZENER DIODE		
IC1		*	75112CF-739-3BE	IC		
IC3		*	S-80737AN-D1	IC		
IC4			M5278D05	IC(VOLTAGE REGULATOR)		
IC5			M5236ML	IC(VOLTAGE REGULATOR)		
IC6			LM7001	IC(PLL FREQUENCY SYNTHESIZER)		
IC9,10			M5201FP	IC(OP AMPLIFIER)		
IC11			NJM4565MD	IC(OP AMP X2)		
IC12			TC9188F	IC(2CH ELECTRIC VOLUME)		
IC13-16			NJM4565MD	IC(OP AMP X2)		
IC17			TC4066BF	IC(BILATERAL SWITCH X4)		
IC18,19			NJM4565MD	IC(OP AMP X2)		
Q1			DTA124EK	DIGITAL TRANSISTOR		
Q2			2SA1037K	TRANSISTOR		
Q3			DTC124EK	DIGITAL TRANSISTOR		
Q4			2SB1187F8	TRANSISTOR		
Q5			2SB1050	TRANSISTOR		
Q6			2SD1266BD	TRANSISTOR		
Q7			2SC2412K	TRANSISTOR		

△印は安全部品

△ indicates safety critical components.

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Q8 Q9 Q10 Q12 Q14 ,15		*	2SB1187F8 2SC2412K 2SB1277 DTC124EK DTC144EK	TRANSISTOR TRANSISTOR TRANSISTOR DIGITAL TRANSISTOR DIGITAL TRANSISTOR		
Q16 Q17 Q18 Q19 Q20		*	2SB1277 2SA1037K DTA124EK DTC114EK DTA124EK	TRANSISTOR TRANSISTOR DIGITAL TRANSISTOR DIGITAL TRANSISTOR DIGITAL TRANSISTOR		
Q21 Q22 ,23 Q24 Q25 -28 Q29		*	DTC144EK 2SA1037K 2SB1277 DTC124EK DTA124EK	DIGITAL TRANSISTOR TRANSISTOR TRANSISTOR DIGITAL TRANSISTOR DIGITAL TRANSISTOR		
Q31 -36 Q37 Q38 Q51 Q52 ,53			2SD1757K DTC144EK 2SC2412K DTC124EK 2SC2412K	TRANSISTOR DIGITAL TRANSISTOR TRANSISTOR DIGITAL TRANSISTOR TRANSISTOR		
Q54 Q55 Q56 Q58 ,59		*	DTC124EK 2SC2412K 2SK669 2SB1277	DIGITAL TRANSISTOR TRANSISTOR FET TRANSISTOR		
<b>CD PLAYER UNIT IN MECHANISM ASS'Y : X32-2210-00</b>						
C1 C2 C3 C4 C5			CK73FB1H103K CC73FCH1H220J CC73FCH1H020C CK73FB1H103K CK73FB1E473KTA	CHIP C 0.010UF K CHIP C 22PF J CHIP C 2.0PF C CHIP C 0.010UF K CHIP C 0.047UF K		
C6 C7 C8 C9 C10 ,11		*	CC73FCH1H181J CK73FB1H223KTA CK73FB1E393KTA C92-1025-05 C92-1020-05	CHIP C 180PF CHIP C 0.022UF K CHIP C 0.039UF K ELECTRO 0.47UF 50WV ELECTRO 10UF 6.3WV		
C12 C13 C14 C15 C16		*	CK73FB1H153K CK73FB1H223KTA C92-1020-05 C92-1026-05 C92-1023-05	CHIP C 0.015UF K CHIP C 0.022UF K ELECTRO 10UF 6.3WV ELECTRO 1UF 50WV ELECTRO 22UF 4.0WV		
C18 C20 ,21 C22 ,23 C24 C25 ,26			CK73EF1C105Z CK73EF1C105Z CK73FB1E393KTA CC73FCH1H101J CK73FB1H103K	CHIP C 1.0UF Z CHIP C 1.0UF Z CHIP C 0.039UF K CHIP C 100PF J CHIP C 0.010UF K		
C27 ,28 C29 ,30 C32 C33 C35			CK73EF1C105Z CC73FCH1H330J CK73EB1E104K CK73EB1E224K CC73FCH1H560J	CHIP C 1.0UF Z CHIP C 33PF J CHIP C 0.10UF K CHIP C 0.22UF K CHIP C 56PF J		
C38 C41 ,42 C45 C47 C48		*	CK73FB1H102K CC73FCH1H100D C92-0012-05 C92-1026-05 C92-1019-05	CHIP C 1000PF K CHIP C 10PF D TANTAL 22UF 6.3WV ELECTRO 1UF 50WV ELECTRO 4.7UF 16WV		

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C49			CK73FB1H183KTA	CHIP C 0.018UF K		
C60 ,61			CK73EB1E104K	CHIP C 0.10UF K		
C66			CK73FB1H102K	CHIP C 1000PF K		
C67			CK73FB1H103K	CHIP C 0.010UF K		
C68			CK73FB1H102K	CHIP C 1000PF K		
C101			CK73FB1H331K	CHIP C 330PF K		
C103			CK73FB1H331K	CHIP C 330PF K		
C105-108			CC73FCH1H181J	CHIP C 180PF J		
C109,110			CK73FB1H221K	CHIP C 220PF K		
C111,112			C92-1019-05	ELECTRØ 4.7UF 16WV		
C113,114			CK73FB1H182K	CHIP C 1800PF K		
C115,116			C92-1019-05	ELECTRØ 4.7UF 16WV		
C117			C92-1020-05	ELECTRØ 10UF 6.3WV		
C118,119			CK73EB1E104K	CHIP C 0.10UF K		
C120,121			CK73FB1H102K	CHIP C 1000PF K		
C122			CK73EB1E104K	CHIP C 0.10UF K		
C123			CK73FB1E473KTA	CHIP C 0.047UF K		
L1			L33-0916-05	SMALL FIXED INDUCTOR		
L2			L40-1001-31	SMALL FIXED INDUCTOR(10UH)		
L3 ,4			L33-0916-05	SMALL FIXED INDUCTOR		
X1			L78-0505-05	RESONATOR		
X2			L77-2011-05	CRYSTAL RESONATOR(16.9344MHZ)		
R1			RK73FB2A102J	CHIP R 1.0K J 1/10W		
R2			RK73EB2B100J	CHIP R 10 J 1/8W		
R3			RK73FB2A332J	CHIP R 3.3K J 1/10W		
R4			RK73FB2A472J	CHIP R 4.7K J 1/10W		
R5			RK73FB2A153J	CHIP R 15K J 1/10W		
R6			RK73FB2A910J	CHIP R 91 J 1/10W		
R7			RK73FB2A241J	CHIP R 240 J 1/10W		
R8			RK73FB2A562J	CHIP R 5.6K J 1/10W		
R9			RK73FB2A134J	CHIP R 130K J 1/10W		
R10			RK73FB2A822J	CHIP R 8.2K J 1/10W		
R11			RK73FB2A123J	CHIP R 12K J 1/10W		
R12			RK73FB2A223J	CHIP R 22K J 1/10W		
R13 ,14			RK73FB2A123J	CHIP R 12K J 1/10W		
R16			RK73FB2A331J	CHIP R 330 J 1/10W		
R17			RK73FB2A223J	CHIP R 22K J 1/10W		
R18			RK73FB2A391J	CHIP R 390 J 1/10W		
R19			RK73FB2A272J	CHIP R 2.7K J 1/10W		
R20			RK73FB2A122J	CHIP R 1.2K J 1/10W		
R21			RK73FB2A125J	CHIP R 1.2M J 1/10W		
R22			RK73FB2A471J	CHIP R 470 J 1/10W		
R23			RK73FB2A103J	CHIP R 10K J 1/10W		
R24 ,25			RK73EB2B222J	CHIP R 2.2K J 1/8W		
R26 ,27			RK73FB2A102J	CHIP R 1.0K J 1/10W		
R28			RK73FB2A333J	CHIP R 33K J 1/10W		
R29			RK73FB2A154J	CHIP R 150K J 1/10W		
R30			RK73FB2A154J	CHIP R 150K J 1/10W		
R34			RK73FB2A221J	CHIP R 220 J 1/10W		
R35			RK73EB2B472J	CHIP R 4.7K J 1/8W		
R36			RK73FB2A562J	CHIP R 5.6K J 1/10W		
R37			RK73FB2A474J	CHIP R 470K J 1/10W		
R38			RK73EB2B103J	CHIP R 10K J 1/8W		
R39			RK73FB2A103J	CHIP R 10K J 1/10W		

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R40 ,41			RK73FB2A472J	CHIP R 4.7K J 1/10W		
R42			RK73FB2A104J	CHIP R 100K J 1/10W		
R43			RK73FB2A224J	CHIP R 220K J 1/10W		
R44			RK73FB2A822J	CHIP R 8.2K J 1/10W		
R45			RK73FB2A272J	CHIP R 2.7K J 1/10W		
R46			RK73FB2A183J	CHIP R 18K J 1/10W		
R47			RK73FB2A393J	CHIP R 39K J 1/10W		
R48			RK73FB2A102J	CHIP R 1.0K J 1/10W		
R49			RK73FB2A331J	CHIP R 330 J 1/10W		
R50			RK73FB2A473J	CHIP R 47K J 1/10W		
R51			RK73FB2A224J	CHIP R 220K J 1/10W		
R52			RK73FB2A225J	CHIP R 2.2M J 1/10W		
R53			RK73FB2A333J	CHIP R 33K J 1/10W		
R55			RK73FB2A103J	CHIP R 10K J 1/10W		
R58			RK73FB2A122J	CHIP R 1.2K J 1/10W		
R60			RK73FB2A272J	CHIP R 2.7K J 1/10W		
R61 -63			RK73FB2A103J	CHIP R 10K J 1/10W		
R65			RK73FB2A563J	CHIP R 56K J 1/10W		
R66			RK73FB2A104J	CHIP R 100K J 1/10W		
R67			RK73FB2A273J	CHIP R 27K J 1/10W		
R68			RK73FB2A123J	CHIP R 12K J 1/10W		
R69			RK73FB2A183J	CHIP R 18K J 1/10W		
R70			RK73FB2A433J	CHIP R 43K J 1/10W		
R71			RK73FB2A223J	CHIP R 22K J 1/10W		
R72			RK73FB2A104J	CHIP R 100K J 1/10W		
R73 -76			RK73FB2A223J	CHIP R 22K J 1/10W		
R77			RK73EB2B223J	CHIP R 22K J 1/8W		
R78			RK73FB2A103J	CHIP R 10K J 1/10W		
R79			RK73FB2A332J	CHIP R 3.3K J 1/10W		
R80			RK73EB2B223J	CHIP R 22K J 1/8W		
R81			RK73FB2A102J	CHIP R 1.0K J 1/10W		
R82 -85			RK73FB2A104J	CHIP R 100K J 1/10W		
R86			RK73FB2A184J	CHIP R 180K J 1/10W		
R87			RK73FB2A333J	CHIP R 33K J 1/10W		
R88			RK73EB2B563J	CHIP R 56K J 1/8W		
R89			RK73EB2B683J	CHIP R 68K J 1/8W		
R90			RK73FB2A103J	CHIP R 10K J 1/10W		
R91			RK73FB2A333J	CHIP R 33K J 1/10W		
R92			RK73EB2B683J	CHIP R 68K J 1/8W		
R93 -95			RK73FB2A331J	CHIP R 330 J 1/10W		
R96 ,97			RK73FB2A223J	CHIP R 22K J 1/10W		
R98			RK73EB2B220J	CHIP R 22 J 1/8W		
R99			RK73FB2A222J	CHIP R 2.2K J 1/10W		
R101-108			RK73FB2A472J	CHIP R 4.7K J 1/10W		
R109-112			RK73FB2A822J	CHIP R 8.2K J 1/10W		
R113,114			RK73FB2A562J	CHIP R 5.6K J 1/10W		
R115,116			RK73FB2A682J	CHIP R 6.8K J 1/10W		
R117,118			RK73FB2A562J	CHIP R 5.6K J 1/10W		
R121,122			RK73FB2A681J	CHIP R 680 J 1/10W		
R123,124			RK73FB2A223J	CHIP R 22K J 1/10W		
R125,126			RK73FB2A103J	CHIP R 10K J 1/10W		
R127			RK73FB2A561J	CHIP R 560 J 1/10W		
R128			RK73FB2A102J	CHIP R 1.0K J 1/10W		
R151			RK73FB2A102J	CHIP R 1.0K J 1/10W		
R153			RK73FB2A682J	CHIP R 6.8K J 1/10W		

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R154			RK73FB2A225J	CHIP R 2.2M J 1/10W		
R156			RK73FB2A221J	CHIP R 220 J 1/10W		
VR1			R12-6423-05	TRIM PØT. 10K		
VR2			R12-6429-05	TRIMMING PØT.(100K)		
W1 ,2			R92-2052-05	CHIP R 0 J 1/10W		
W4 -7			R92-2052-05	CHIP R 0 J 1/10W		
W11 -25			R92-2053-05	CHIP R 0 J 1/8W		
D1			MA110	DIØDE		
D2			MA8062	ZENER DIØDE		
D3			MA110	DIØDE		
D4			MA8091	ZENER DIØDE		
D6 -8			MA110	DIØDE		
IC1			TA8191F	IC(CD FOCUS, TRACKING SERVØ)		
IC2		*	TC9236AF	IC(CD 1CHIP PROCESSØR)		
IC3		*	AN8388SR	IC		
IC5			TA7291F	IC		
IC6		*	75008GB-672-3B4	IC		
IC7		*	SM5870AS	IC		
IC8 ,9			NJM4580E	IC(OP AMP)		
IC11			TA78L05F	IC(VOLTAGE REGULATOR/ +5V)		
IC12			TC7SU04F	IC(INVERTER)		
IC13			TC74AC04F	IC		
Q1			2SB624(BV3)	TRANSISTØR		
Q2			2SA1037K	TRANSISTØR		
Q3			DTC124EK	DIGITAL TRANSISTØR		
Q4			2SC2412K	TRANSISTØR		
Q5			DTA124EK	DIGITAL TRANSISTØR		
Q7 ,8			DTC114YK	DIGITAL TRANSISTØR		
Q9			2SA1037K	TRANSISTØR		
Q10			2SC2412K	TRANSISTØR		
Q11			DTC114YK	DIGITAL TRANSISTØR		
Q12			DTC124EK	DIGITAL TRANSISTØR		
Q13			2SA1036K	TRANSISTØR		
Q14			2SD1624	TRANSISTØR		
Q15			DTA124EK	DIGITAL TRANSISTØR		
Q16 ,17			2SD1757K	TRANSISTØR		
Q18 -20			DTC124EK	DIGITAL TRANSISTØR		
TH1			NT732BTD33K	THERMISTØR		
POWER AMPLIFIER UNIT : X85-1210-10						
C1 ,2			C90-2552-05	ELECTRØ 47UF 16WV		
C3		*	C90-2556-05	ELECTRØ 3.3UF 50WV		
C4		*	C90-2556-05	ELECTRØ 3.3UF 50WV		
C5 ,6		*	C90-2564-05	ELECTRØ 100UF 16WV		
C7 -10			CK73EB1H473K	CHIP C 0.047UF K		
C11 ,12		*	C90-2564-05	ELECTRØ 100UF 16WV		
C13 ,14		*	C90-2556-05	ELECTRØ 3.3UF 50WV		
C15 ,16		*	C90-2564-05	ELECTRØ 100UF 16WV		
271	1H	*	F01-1391-03	HEAT SINK		
M	1H		N83-3006-46	PAN HEAD TAPTITE SCREW		
N	1H		N89-3006-46	BINDING HEAD TAPTITE SCREW		
R1 -4			RK73EB2B201J	CHIP R 200 J 1/8W		
R5 -8			RK73BB2B331J	CHIP R 330 J 1/8W		

# KDC-67R/68R

## PARTS LIST

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Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕向	Re- marks 備考
W5 W6 -16			R92-2052-05 R92-2053-05	CHIP R 0 J 1/10W CHIP R 0 J 1/8W		
IC1 ,2			AN7174K	IC(AF AMP)		
TUNER UNIT : X86-1240-10						
C1 C2 C3 -5 C6 C7			CK73FB1H223KTA CK73EB1E104K CK73FB1H223KTA CK73FB1H472K CK73FB1H223KTA	CHIP C 0.022UF K CHIP C 0.10UF K CHIP C 0.022UF K CHIP C 4700PF K CHIP C 0.022UF K		
C8 C9 C10 C11 C12			CK73EB1H472K CK73FB1H223KTA CK73EB1E104K CK73EB1H102K CE04NW1H010M	CHIP C 4700PF K CHIP C 0.022UF K CHIP C 0.10UF K CHIP C 1000PF K ELECTOR 1.0UF 50WV		
C13 C14 C15 C16 C17			C92-0004-05 CK73EB1H393K C92-0002-05 CE04NW1C100M CK73FB1H331K	ELECTRO 1.0UF 16WV CHIP C 0.039UF K CHIP TAN 0.22UF 35WV ELECTRO 10UF 16WV CHIP C 330PF K		
C18 C19 C20 C21 C22			CK73FB1H471K CK73EB1E104K C92-0004-05 C92-0003-05 CK73EB1H473K	CHIP C 470PF K CHIP C 0.10UF K ELECTRO 1.0UF 16WV CHIP TAN 0.47UF 25WV CHIP C 0.047UF K		
C23 ,24 C25 C26 C27 ,28 C29			CK73FB1H223KTA CK73FB1H222K CE04NW1C100M CK73EB1H473K CK73EB1E104K	CHIP C 0.022UF K CHIP C 2200PF K ELECTRO 10UF 16WV CHIP C 0.047UF K CHIP C 0.10UF K		
C30 C31 C32 C33 C34			CK73FB1H221K C92-0004-05 CE04NW1A101M CK73FB1H223KTA CC73FCH1H220J	CHIP C 220PF K ELECTRO 1.0UF 16WV ELECTRO 100UF 10WV CHIP C 0.022UF K CHIP C 22PF J		
C35 C36 C37 C38			CK73EB1E104K C92-0514-05 C92-0001-05 CK73EB1E104K	CHIP C 0.10UF K CHIP TAN 2.2UF 10WV CHIP TAN 0.1UF 35WV CHIP C 0.10UF K		
WH1	1H	*	E30-3786-05	CORD WITH PLUG		
CF1 ,2 L1 L2 T1 X1		*	L72-0715-05 L40-4791-16 L40-2291-31 L30-0715-05 L78-0506-05	CERAMIC FILTER SMALL FIXED INDUCTOR(4.7UH,K) SMALL FIXED INDUCTOR(2.2UH) FM IFT RESONATOR		
R1 R2 R3 R4 R5			RK73EB2B100J RK73FB2A102J RK73FB2A223J RK73FB2A222J RK73EB2B100J	CHIP R 10 J 1/8W CHIP R 1.0K J 1/10W CHIP R 22K J 1/10W CHIP R 2.2K J 1/10W CHIP R 10 J 1/8W		
R6 R7 R8 R9			RK73FB2A222J RK73FB2A561J RK73FB2A331J RK73FB2A560J	CHIP R 2.2K J 1/10W CHIP R 560 J 1/10W CHIP R 330 J 1/10W CHIP R 56 J 1/10W		

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R10			RK73FB2A271J	CHIP R 270 J 1/10W		
R11			RK73FB2A331J	CHIP R 330 J 1/10W		
R12 ,13			RK73FB2A332J	CHIP R 3.3K J 1/10W		
R14			RK73FB2A682J	CHIP R 6.8K J 1/10W		
R15			RK73FB2A752J	CHIP R 7.5K J 1/10W		
R16			RK73FB2A103J	CHIP R 10K J 1/10W		
R17			RK73FB2A273J	CHIP R 27K J 1/10W		
R18			RK73FB2A823J	CHIP R 82K J 1/10W		
R19			RK73FB2A912J	CHIP R 9.1K J 1/10W		
R20			RK73FB2A102J	CHIP R 1.0K J 1/10W		
R21 ,22			RK73FB2A103J	CHIP R 10K J 1/10W		
R23			RK73FB2A273J	CHIP R 27K J 1/10W		
R24			RK73FB2A562J	CHIP R 5.6K J 1/10W		
R25			RK73FB2A104J	CHIP R 100K J 1/10W		
R27			RK73FB2A100J	CHIP R 10 J 1/10W		
R28			RK73FB2A152J	CHIP R 1.5K J 1/10W		
R29			RK73FB2A751J	CHIP R 750 J 1/10W		
R30			RK73FB2A243J	CHIP R 24K J 1/10W		
R31			RK73FB2A103J	CHIP R 10K J 1/10W		
VR1 ,2			R12-3685-05	TRIMMING POT.(10K 75)		
VR3			R12-3127-05	TRIMMING POT.(10K 75)		
W1 -3			R92-2053-05	CHIP R 0 J 1/8W		
D1		*	MA110	DIODE		
IC1		*	KKC03	IC		
Q1		*	DTC124EK	DIGITAL TRANSISTOR		
Q2		*	2SC2413K	TRANSISTOR		
Q3		*	DTC124EK	DIGITAL TRANSISTOR		
Q4		*	DTA124EK	DIGITAL TRANSISTOR		
Q5		*	2SC2412K	TRANSISTOR		
TU1	2G	*	W02-1339-05	FM/AM FRONT-END		
DAUGHTER UNIT : X89-1400-10						
C1 -4			CK73BB1E104K	CHIP C 0.10UF K		
CN1	1H		E40-9174-05	PIN ASSY		
LH1			J19-2826-05	HOLDER		
R1 -4			RK73BB2B2R2J	CHIP R 2.2 J 1/8W		
W1 -3			R92-2053-05	CHIP R 0 J 1/8W		
MECHANISM ASS'Y : X92-1660-00						
1	3A	*	A10-2122-02	CHASSIS CALKING ASSY		
2	3D	*	A10-2124-03	CHASSIS ASSY		
3	1C	*	A10-2127-03	CHASSIS CALKING ASSY		
6	2B	*	D10-2693-04	LEVER		
7	2B, 3B	*	D10-2695-04	LEVER		
8	2A	*	D10-2696-03	LEVER		
9	2A	*	D10-2697-04	LEVER		
10	2A	*	D10-2698-04	ARM ASSY		
12	2D	*	D10-2700-04	RØD		
13	2D	*	D10-2701-04	RØD		
14	2C	*	D10-2702-03	LEVER		
15	1C	*	D10-2712-04	LEVER ASSY		
16	1C	*	D10-2714-04	LEVER		
17	1C	*	D10-2715-04	LEVER		

A indicates safety critical components.

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18	2A	*	D10-2716-03	LEVER ASSY		
20	3B	*	D12-0604-03	CAM		
21	2B	*	D12-0605-03	CAM		
22	2C		D13-1029-24	GEAR		
23	2C		D13-1030-24	GEAR		
24	2B	*	D19-0605-04	GEAR		
25	2A		D13-1040-04	GEAR		
26	2B		D13-1042-44	GEAR		
27	2B		D13-1043-04	GEAR		
28	2B		D13-1044-24	GEAR		
29	3A	*	D13-1083-04	WORM		
30	2A	*	D13-1084-04	GEAR		
31	1A	*	D13-1085-04	GEAR		
32	2A	*	D13-1086-03	LACK (GEAR)		
33	2B	*	D14-0622-04	ROLLER ASSY		
34	1A	*	D14-0633-04	ROLLER		
35	2A	*	D14-0624-03	ROLLER		
36	2D	*	D21-2109-04	SHAFT ASSY		
37	3A	*	D21-2111-04	SHAFT ASSY		
38	1A		D23-0905-14	RETAINER		
39	3A	*	D23-0910-04	RETAINER		
40	3C, 3D	*	D39-0202-03	DAMPER		
41	2C	*	F20-1708-04	INSULATING SHEET		
42	2A	*	G01-2584-04	EXTENSION SPRING		
43	2C	*	G01-2585-04	EXTENSION SPRING		
44	1C	*	G01-2586-04	EXTENSION SPRING		
45	1D	*	G01-2587-04	EXTENSION SPRING		
46	1C	*	G01-2588-04	EXTENSION SPRING		
47	2B	*	G01-2590-04	EXTENSION SPRING		
48	3A	*	G01-2591-04	EXTENSION SPRING		
49	3A	*	G01-2605-04	EXTENSION SPRING		
51	2D	*	G02-1136-04	FLAT SPRING		
52	2C	*	G02-1138-04	FLAT SPRING		
53	2C	*	G02-1139-04	FLAT SPRING		
54	2D	*	G02-1140-03	FLAT SPRING ASSY		
55	1C		G02-1151-04	FLAT SPRING		
56	2A		G02-1156-04	FLAT SPRING		
57	3A		G02-1157-04	FLAT SPRING		
58	2C	*	J11-0603-03	CLAMPER		
59	2C	*	J12-0662-04	PIN		
60	3B	*	J12-0663-04	PIN		
62	3C, 3D	*	J19-4411-04	HOLDER		
63	1A	*	J19-4412-03	HOLDER		
64	2B	*	J21-7268-04	MOUNTING HARDWARE ASSY		
65	3A	*	J21-7270-03	MOUNTING HARDWARE		
66	2A	*	J21-7271-04	MOUNTING HARDWARE ASSY		
67	1A	*	J21-7279-02	MOUNTING HARDWARE		
69	2C	*	J30-1014-04	SPACER		
70	1A	*	J90-0726-02	GUIDE		
			H25-1103-04	PROTECTION BAG (200X250X0.05)		
A	1A		N39-2025-46	PAN HEAD MACHIN SCREW		
B	3A		N09-4023-05	MACHINE SCREW (M2X3)		
C	2C		N39-1728-46	PAN HEAD MACHIN SCREW		
D	2C		N80-2004-46	PAN HEAD TAPTITE SCREW		
E	3C	*	N86-2008-41	BINDING HEAD TAPTITE SCREW		

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KDC-67R/68R

KDC-67R/68R

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SPECIFICATIONS

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参照番号	位置	新	部品番号	部品名 / 規格	仕向	備考
F	2B		N19-2022-04	FLAT WASHER		
FPC1	2C	*	J84-0021-03	FLEXIBLE PRINTED WIRING BOARD		
FPC2	1A	*	J84-0022-03	FLEXIBLE PRINTED WIRING BOARD		
FPC3	3A	*	J84-0023-03	FLEXIBLE PRINTED WIRING BOARD		
M1	2C		T42-0704-15	DC MOTOR		
M2	2C	*	T42-0718-05	MOTOR ASSY		
M3	2A	*	T42-0721-05	DC MOTOR		
PU1	2D	*	T25-0202-05	OPTICAL PICKUP HEAD		
S1	2C		S40-1112-05	PUSH SWITCH		
S2	3A		S40-1140-05	PUSH SWITCH		

**Disc section**  
Laser diode ..... GaAlAs (λ=780nm)  
Digital filter ..... 4 times over sampling  
D/A converter ..... 1 bit (with D.P.A.C.)  
Spindle speed ..... 500 to 200rpm (CLV)  
Wow & flutter ..... Below measurable limit  
Frequency response ..... 10Hz to 20kHz (±1dB)  
Total harmonic distortion ..... 0.01% (1kHz)  
Signal to noise ratio ..... 93dB  
Dynamic range ..... 96dB  
Channel separation ..... 85dB

**FM tuner section**  
Frequency range ..... 87.9 to 107.9MHz [67R]  
..... 87.5 to 108.0MHz [68R]  
Channel space ..... 200kHz [67R]  
..... 50kHz [68R]  
Usable sensitivity ..... 12.0dbf (1.1μV / 75Ω)  
50dB quieting sensitivity ..... 15.2dbf (1.6μV / 75Ω)  
Frequency response ..... 30Hz to 15kHz (±1dB)  
Signal to noise ratio ..... 73dB  
Selectivity ..... 70dB  
Capture ratio ..... 1.5dB  
Stereo separation ..... 40dB (1kHz)

KENWOOD follows a policy of continuous advancements in development.  
For this reason specifications may be changed without notice.

**AM tuner section**  
Frequency range ..... 530 to 1700kHz [67R]  
..... 531 to 1611kHz [68R]  
Channel space ..... 10kHz [67R]  
..... 9kHz [68R]  
Usable sensitivity ..... 27dbμ

**Audio section**  
Maximum power output ..... 25 x 2 / 8 x 4W  
Power output ..... 15 x 2 / 5 x 4W  
..... (4Ω, 30~20kHz, 1% THD)  
Tone action  
Bass ..... ±8dB (100Hz)  
Treble ..... ±8dB (10kHz)  
Preout level ..... 1.0V

**General**  
Operating voltage ..... 14.4V (11 to 16V)  
Current consumption ..... 5.0A  
Operating temperature ..... -10 to +50°C  
Installation size ..... 180 x 50 x 170mm  
..... (7-1 / 16 x 1-15 / 16 x 6-11 / 16 inch)  
Weight ..... 1.2kg (2.6LBs)

KENWOOD CORPORATION

Shionogi Shibuya Building, 17-5, 2-chome Shibuya, Shibuya-ku, Tokyo 150, Japan  
KENWOOD U.S.A. CORPORATION  
2201 East Dominguez Street, Long Beach, CA 90810;  
550 Clark Drive, Mount Olive, NJ 07828, U.S.A.  
KENWOOD ELECTRONICS CANADA INC.  
6070 Kastrel Road, Mississauga, Ontario, Canada L5T 1S8  
TRIO-KENWOOD U.K. LTD.  
KENWOOD HOUSE, Dwight Road, Watford, Herts., WD1 8EB United Kingdom  
KENWOOD ELECTRONICS BENELUX N.V.  
Mechelsesteenweg 418 B-1930 Zaventem, Belgium  
KENWOOD ELECTRONICS DEUTSCHLAND GMBH  
Rembrücker-Str. 15, 6056 Heusenstamm, Germany  
TRIO-KENWOOD FRANCE S.A.  
13 Boulevard Ney, 75018 Paris, France  
KENWOOD LINEAR S.p.A.  
20125, MILANO-VIA ARBE, 50, ITALY  
KENWOOD ELECTRONICS AUSTRALIA PTY. LTD. (A.C.N 001 499 074)  
P.O. BOX 504, 8 FIGTREE DRIVE, AUSTRALIA CENTRE, HOMEBUSH, N.S.W. 2140, AUSTRALIA  
KENWOOD & LEE ELECTRONICS, LTD.  
Wang Kee Building, 4th Floor, 34-37, Connaught Road, Central, Hong Kong